April, 1948

EDISON ELECTRIC INSTITUTE BULLETIN

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PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

ELECTRICAL RESEARCH STATISTICS
THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

January, 1947-1948

SOURCE AND DISPOSAL OF ENERGY - MONTH OF JANUARY

GENERATION * (Net)	1948	1947	%
By Fuel Burning Plants	17,514,364,000	14,500,140,000	+20.8
By Water Power Plants	6,443,980,000	7,136,120,000	- 9.7
TOTAL GENERATION	23,958,344,000	21,636,260,000	+10.7
Add -- Net Imports Over International Boundaries	83,500,000	108,162,000	-22.8
Less - Company Use	134,474,000	142,949,000	- 5.9
Less - Energy Used by Producer	408,941,000	384,691,000	
NET ENERGY FOR DISTRIBUTION	23,498,429,000	21,216,782,000	+10.8
Losses and Unaccounted for	3,231,012,000	2,913,576,000	+10.9
SALES TO ULTIMATE CUSTOMERS	20,267,417,000	18,303,206,000	+10.7

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS - As of January 31st			
Residential or Domestic	31,758,231	29,857,402	+ 6.4
Rural (Distinct Rural Rates)	1,537,073	1,393,780	+10.3
Commercial or Industrial			
Small Light & Power	4,975,410	4,710,111)	+ 5.8
Large Light & Power	192,648	174,166)	
Other Customers	136,325	126,090	+ 8.1
TOTAL ULTIMATE CUSTOMERS	38,599,687	36,261,549	+ 6.4
KILOWATTHOUR SALES-During Month of January			
Residential or Domestic	4,776,755,000	4,150,354,000	+15.1
Rural (Distinct Rural Rates)	384,073,000	289,307,000	+32.8
Commercial or Industrial			
Small Light & Power	3,569,628,000	3,175,069,000	+12.4
Large Light & Power	9,990,392,000	9,218,988,000	+ 8.4
Street and Highway Lighting	247,507,000	233,302,000	+ 6.1
Other Public Authorities	547,520,000	510,757,000	+ 7.2
Railways and Railroads			
Street & Interurban Railways	437,293,000	436,765,000	+ 0.1
Electrified Steam Railroads	247,822,000	237,297,000	+ 4.4
Interdepartmental	66,427,000	51,367,000	+29.3
TOTAL TO ULTIMATE CUSTOMERS	20,267,417,000	18,303,206,000	+10.7
REVENUES FROM ULTIMATE CUSTOMERS	$ 362,162,700	$ 326,660,100	+10.9

RESIDENTIAL OR DOMESTIC SERVICE

Average Customer Data - for 12 months ended January 31st			
Kilowatthours per Customer	1,451	1,340	+ 8.3
Average Annual Bill	$44.69	$42.88	+ 4.2
Revenue per Kilowatthour	3.08¢	3.20¢	- 3.8

(*) By Courtesy of the Federal Power Commission

Vol. 16, No. 4, EDISON ELECTRIC INSTITUTE BULLETIN; published monthly. Entered as second-class matter Aug. 17, 1933, at the post office at Philadelphia, Pa., under the act of March 3, 1879. Publication office, 56th and Chestnut Sts., Philadelphia 39, Pa. Editorial office, 420 Lexington Ave., New York 17, N. Y. Subscription rate $2.00 per year in the United States; $3.00 per year in foreign countries.

The Edison Electric Institute does not assume responsibility for, nor necessarily endorse or approve, statements made by contributors to the BULLETIN.

EDISON ELECTRIC INSTITUTE BULLETIN

Volume 16 APRIL, 1948 No. 4

All-Time Attendance Record and High-Caliber Program Mark 14th Annual E. E. I. Sales Conference

Widespread Interest in Utility Sales Programs Noted at Meeting

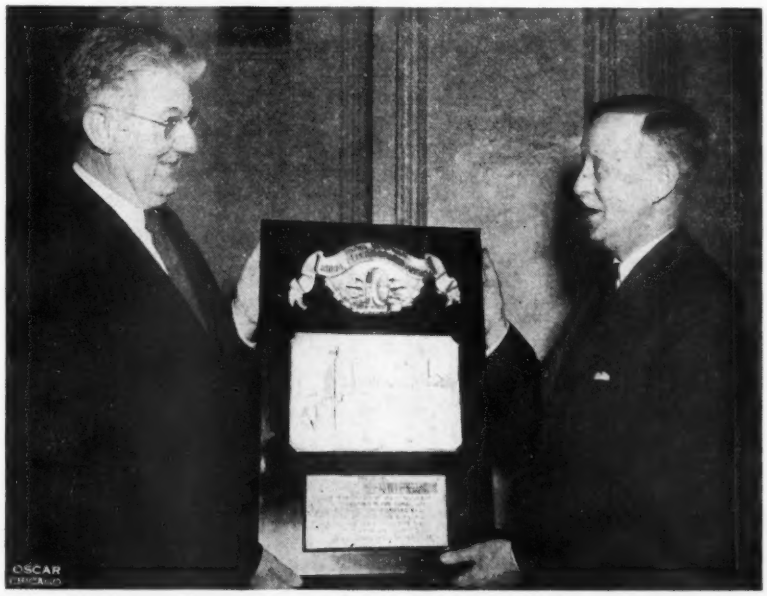
"YOU have a great responsibility, the greatest in your long years of sales successes. We had better be about the job. . . ." This was the message of Charles E. Oakes, President of the Edison Electric Institute, to the electric utility sales and advertising managers who attended the 14th Annual E.E.I. Sales Conference, and his words formed a fitting keynote to the meeting.

Speaker after speaker emphasized the vital need for utility sales executives to begin planning and preparing the promotional programs that will be necessary to keep $6 billion worth of new power production and distribution facilities busy with profitable load. . . the need for sales performance of a type to instil confidence of investors in the utility industry as a sound field of investment. . .and the time that is essential before sales forces can be recruited, promotional programs developed and organizations keyed up to successful sales activities.

Their talks were made before a capacity audience of close to 900 utility sales people, manufacturer's representatives and others who attended the conference, which was held at the Edgewater Beach Hotel, Chicago, April 6-8.

Among the outstanding events of the meeting were the introduction of E.E.I.'s new promotional and educational program on all-electric kitchens, which is expected to be ready in the early fall; several presentations dealing with the Planned Lighting program, including case histories of successful electric company experiences with this program in the field, and the announcement of winners of the four commercial prize awards which were offered for progress in several types of sales activity during 1947.

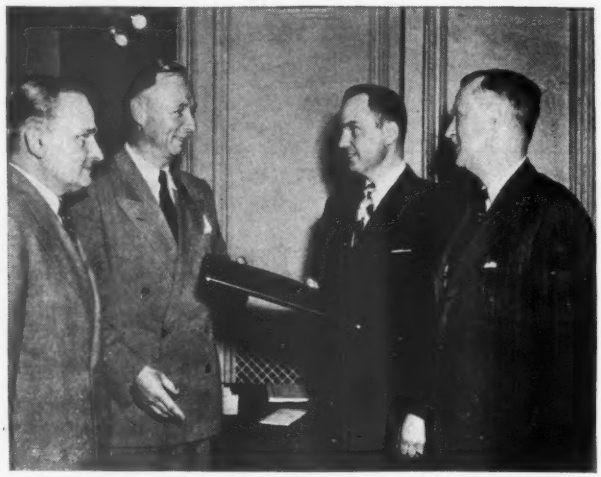
All of the 19 committees of the E.E.I. Commercial Division had scheduled meetings for Monday, April 5, and many important projects were considered in well-attended meetings. The newly formed Television Committee, with Frank C. Pesveyc of the Public Service Electric & Gas Company as Chairman, had its first meeting, and developed plans for study of this innovation.



E. C. Easter, Manager, Rural and Towns Division, Alabama Power Company, accepts the Thomas W. Martin Farm Electrification Award for his company from Mr. Sawyer.

At a dinner meeting of the Commercial Division General Committee, held on Monday evening, the chairmen of the Residential, Farm, Industrial and Commercial Sales Sections of the Commercial Division, and the chairmen of special committees, turned in encouraging reports of their progress during the previous year, and of their plans for future activities. Also announced at this meet-

Ralph P. Wagner, right, Chairman of the Commercial Division General Committee receives a certificate in recognition of his leadership of the Division during the past two years from Henry Steinmetz, Vice President of the Public Service Electric & Gas Company, at the closing luncheon session.



Norman Tindal, Duke Power Co., Charlotte, N. C., receives first prize in the Augustus D. Curtis Award, for the best commercial lighting installation during 1947. Left to right, M. C. Wilt, President, Curtis Lighting, Inc.; Darwin Curtis, chairman of the company; Mr. Tindal, and H. M. Sawyer, Chairman of the E.E.I. Prize Awards Committee.

F. A. Coffin, Vice President, Wisconsin Electric Power Company, and Walter Kant, receive the first prize in Class III of the George A. Hughes Awards for promotion of commercial electric cooking during 1947 from L. C. Truesdell, Vice-President, Hotpoint, Inc.

Miss Clara Zillessen, Advertising Manager, Philadelphia Electric Company, accepts the first prize of the George A. Hughes Awards, Class I, awarded to her company from L. C. Truesdell.

Robert Giedd of Florida Power Corporation accepts for his company the first prize in Class II, George A. Hughes Awards, for its promotion of residential electric ranges during 1947, from L. C. Truesdell.

ing were the first annual Planned Lighting Awards, for electric company promotion of Planned Lighting in the residential, industrial and commercial fields, which are described in detail on page 121 of this issue.

Four Sectional Meetings on Tuesday, April 6

Four concurrent all-day meetings sponsored by the Commercial Sales, Farm, Industrial Power and Heating and Residential sections filled Tuesday, April 6.

The Residential Section, with J. M. Stedman, Section chairman, and J. F. Burt, chairman of the Electric Kitchen and Laundry Committee, presiding, heard a dramatic presentation of the new electric kitchen program, which soon will be offered to the industry. H. H. Brenan, Pennsylvania Power and Light Company, T. O. McQuiston, Duquesne Light Company, and Harry E. Warren, the Ralph H. Jones Company, the activity's advertising agency, were heard in this part of the program, with a discussion of the need for promotion of electric kitchens and their appliances, and a presentation of the impressive group of sales and educational aids which will be included in the program.

H. A. Stroud, chairman of the Home Lighting Educational Committee of the Better Light-Better Sight Bureau, described the Bureau's plans to cooperate with educators in teaching modern methods of illumination, and their potential value to the industry.

Paul W. Clements, Columbus and Southern Ohio Electric Company, closed the Residential Section program with a description of typical electric utility promotions of Planned Lighting, and a discussion of this program's importance. Mr. Clements also outlined the new sales training film for home lighting representatives, which will be similar to the sound-slide films offered in the E.E.I. Sales Training Course, and which will be ready within the near future.

The Farm Section, with E. C. Easter of the Alabama Power Company in the chair, presented an extensive and well-rounded program for those attending its meeting. Prof. D. E. Wiant of Michigan State College discussed the Farm Section's in-service training program for agricultural workers, and was followed by A. G. Mayer, Washington Water Power Company, who described his company's activities in this field, and Russell H. Gist, West Virginia Agricultural Extension Service, analyzing the success of the program to date.

Winners of the 1947 Laura McCall Home Service Awards. Left to right, Miss Leonora O'Neal, Gulf States Utilities Co., Beaumont, Texas, award winner in Division A; Mrs. Routh T. Neill, Kingsport Utilities, Inc., Kingsport, Tenn., award winner in Division B; A. P. MacNamee, Camille Davied, and Elizabeth Sweeney, *McCall's Magazine;* Miss Suzanne Wofford, Mississippi Power & Light Co., Jackson, Miss., Miss Virginia Thabet, Appalachian Electric Power Co., Roanoke, Va., and Miss Vivian Marshall, New Orleans Public Service Inc., New Orleans, La., the three award winners in Division C; H. M. Sawyer, Chairman, E.E.I. Prize Awards Committee.

The agricultural development program made available to the industry by the Farm Section was discussed by a panel of authorities which included Fred M. Shaw, Texas Power & Light Company; J. B. Stere, West Penn Power Company; Neil Bolton, Tide Water Power Company; and E. J. Gildehaus, Union Electric Company of Missouri. C. E. Seitz of the Virginia Polytechnic Institute described the need for planning for the future in farm electrification and agricultural development.

The Industrial Power and Heating Section, with J. R. Hartman, chairman, and R. G. Ely, vice-chairman presiding, heard such competent speakers as W. C. Beckjord, President of The Cincinnati Gas and Electric Company, on "The Relation of the Power Salesman to the Utility Problem"; F. McQuillin, West Penn Power Company, on the present need for "Super, Stupendous, Colossal Selling," and D. C. McKee, vice-president and general manager, Empire District Electric Company, who discussed the important field of industrial development, and its value to the utility.

C. B. Stainback, Westinghouse Electric Corporation, presented his views of the prospects for future industrial power load, and C. A. Kells, managing director of the Electric Industrial Truck Association followed with a talk on "Help Wanted! A Philosophy for Selling Industrial Power." Other speakers heard during the Industrial Section meeting were F. W. McChesney, General Electric Company, who outlined improved handling methods, and H. J. Cupper, General Motors Corporation, on customer relations.

The Commercial Sales Section, with H. B. Gould, chairman of the Commercial Lighting Committee, and Bruce Jensen, chairman of the Street Lighting Coordination Committee, alternating in the chair, heard an interesting talk on "Commercial Sales, Unlimited," by P. M. Alden, of the Philadelphia Electric Company. The problem of "Who Does What About Street Lighting?" was ably handled by Bruce Jensen, and E. C. Huerkamp, Westinghouse Electric Corporation.

Two case histories of successful promotion of Planned Lighting in the commercial field were presented by Paul Manchester, Blackstone Valley Gas & Electric Company, and C. D. Hollister, New York Power & Light Corporation, who described the intensive activities sponsored by their respective companies in this market, and the results attained.

Expansion to Test Sales Ability, Wagner Warns

Ralph P. Wagner, chairman of the Commercial Division General Commit-

tee, opened the first General Session on Wednesday morning. In his brief remarks, Mr. Wagner pointed out that "the flood of natural growth can no longer be relied upon to carry us to new records in the use of electricity each year. Our sales figures will soon depend for annual increases more upon aggressive, well-organized sales staffs and intensive promotional programs, than upon the naturally increased demand of our customers."

The growth planned for the electric utility industry over the next few years represents "the biggest challenge ever faced by any industry," the meeting was told by Charles E. Oakes, E.E.I. President, and President of the Pennsylvania Power and Light Company. "It has been accepted out of confidence in your ability as salesmen," he said.

Electric interdependence is effort by, for and of the electrical industry, which will result in benefits both to the public and the industry, N. J. MacDonald, vice-president of The Thomas & Betts Company, Elizabeth, N. J., and chairman of the NEMA Interdependence Committee, told the conference. "Electrical interdependence means that everyone who gets a living out of the electrical industry should do something practical to increase the use of electricity."

The United States faces a definite responsibility to aid other democratic nations in developing their electric power resources, Walker L. Cisler, executive vice-president of The Detroit Edison Company told the audience, but in meeting that responsibility there must be no interference with our own program, which calls for construction at the rate of more than one billion dollars a year.

In a rousing finish to the first general session, Elmer Wheeler, noted speaker at business meetings and inventor of the 'tested selling sentence,' reminded the audience that "It's the sizzle that sells the steak—not the cow. Hidden in every piece of merchandise, in every service that you can render someone, is a sizzle. It's the tang in the cheese, the crunch in the cracker, the whiff of the coffee. Find your sizzles—and you're on the road to success!"

At a luncheon sponsored by the Public Utilities Advertising Association, H. S. Metcalfe, PUAA president, and advertising manager, West Penn Power Company, urged his listeners not to neglect security-holders, educators and clergy, and young people in their public relations programs.

Prize Award Winners

The second General Session on Wednesday afternoon was highlighted by the presentation of the four commercial awards now administered through E.E.I., with H. M. Sawyer, chairman of the Institute's Prize Awards Committee, presiding.

The Thomas W. Martin Award, offered annually to the electric company achieving the greatest progress in farm electrification in its area, went to the Alabama Power Company. This company, Mr. Sawyer pointed out, has now won the Martin Award twice, for its performance in 1932 and again in 1947. Only one other utility has equalled this record, Mr. Sawyer said, this being the Puget Sound Power & Light Company.

Norman Tindal of the Duke Power Company received the first prize in the August D. Curtis Award for the best commercial lighting installations made during 1947, which is offered by Curtis Lighting, Inc., in memory of its founder. Mr. Tindal received a certificate and a $200 cash award.

D. E. Romberger, Luzerne County Gas & Electric Corporation, took the second prize in this contest, with Lucian T. Kight of the Duquesne Light Company receiving the third prize, and Frank O. Evans, Indianapolis Power & Lighting Company, the fourth award.

The Laura McCall Award, offered by *McCall's Magazine,* was made in three divisions. Miss Leonora O'Neal, home service director, Gulf States Utilities Company, received the award in Division A, for her company's achievements in home service operation during 1947. The Division B Award, for outstandingly successful records by home service departments in smaller companies, went to Mrs. Routh T. Neill, home service director, Kingsport Utilities, Inc.

The three awards offered in Division C for excellent home service ideas, were received by Miss Vivian Marshall, home service director, New Orleans Public Service, Inc; Miss Virginia Thabet, home service advisor, Appalachian Electric Power Company, and Miss Suzanne Wofford, home service advisor, Mississippi Power & Light Company. Each of the five McCall Award winners received a plaque, with a $200 cash award.

The George A. Hughes Electric Cooking Awards, offered by Hotpoint, Inc., were also presented in three groups. First prize in Class I, for electric kitchen promotion during 1947, was received by the Philadelphia Electric Company; second prize, by Georgia Power Company, and third, by the Indiana Service Corporation. The Hughes awards consist of trophies and plaques, with cash awards to the individuals responsible for the companies' records.

In Class II, for residential electric range promotion, the Florida Power Corporation, and its affiliate, Georgia Power & Light Company, took the top honors. Second prize went to the Gulf States Utilities Company.

The Wisconsin Electric Power Company was the winner in Class III, for commercial electric cooking promotion, with the Birmingham Electric Company receiving the second prize, and the Union Electric Company of Missouri, third prize.

Following the award presentations, the audience saw an exceptionally interesting and well performed play entitled "The Defense Rests," which was prepared by a committee of utility and manufacturer representatives, headed by C. A. Stevens of the Public Service Electric & Gas Company.

Third General Session

Four speakers carefully selected from fields outside of the electrical industry were heard during the third General Session on Wednesday morning, and made the two-hour meeting a most profitable one for their listeners.

Dr. J. O. Christianson, superintendent of the School of Agriculture, University of Minnesota, told the conference that "of the 21,210,000,000 man-hours of labor performed on farms during 1944, about 60 per cent were performed with the hands or with small hand tools...it is significant that this high percentage of hand labor remains after a hundred years of substitution of mechanical or animal power for human power. There is a tremendous field for further mechanization of farm jobs.

"It would be tragic if in our efforts to preserve freedom for other nations, we were to lose our own by adopting the kind of economic and social regimentation against which we are rearming," F. T. Letchfield, consulting engineer and assistant vice-president of the Wells Fargo Bank and Union Trust Company, San Francisco, warned the conference. "If in fear and panic we impose a huge financial load for rearmament upon our present inflated price structure, there might result a reimposition of government controls of

(*Continued on page* 110)

What Does $6 Billion Mean to the Utility Salesman?

By Charles E. Oakes
President, Edison Electric Institute

An address delivered before the Fourteenth Annual Sales Conference, E.E.I., at Chicago, Ill., on April 7, 1948.

DURING the whole 66 years of its history, the business-managed light and power industry of America has accepted and met one challenge after another.

The industry has been challenged by the people and its own sales forces to expand and enlarge its facilities to meet the projected sales of its commercial forces. Because the new business estimates have been met, the industry has come to have confidence in its own sales abilities.

Salesmen have been looking ahead again. You have seen industry after industry in which still greater production efficiency can be reached, with profit, through wider and new uses of more electric service.

You know where and how marketing costs can be cut and results improved by fuller use of electric service in commerce.

You have watched American agriculture perform marvels in farm production, aided by wider availability of electricity in rural areas, and you have built increases in the American standard of living with the many time and labor-saving applications of modern electric service that make our standards the envy of the whole world.

You have considered planned lighting and how it can be sold for better production, better health and greater comfort in quantities that dwarf today's uses of lighting.

You have investigated the many new uses — electronics, di-electric and frequency heating, year-round weather control—the heat pump—electric kitchens, —yes, complete electrical living.

You have analyzed and listed over 200 uses of electricity on the farms of America, which will still further contribute to production and profit increases for American agriculture.

And you have come up with new totals again—

As usual, these estimated totals for new business in the next few years far outrun any previously compiled for any like period in the past. Our imaginations are staggered!

Homes and industry want more of our service, much more; 13½ million kw more in the next four years on top of the 49 million peak load for 1947. To provide for this load increase, plant capacity will be expanded 19,000,000 kw.

To produce the power which you say will be sold means 5 million dollars more to be invested in facilities for one company—50 million more for another —200 million more for a third—and so on clear across America until the national total represents 6 billion dollars in new facility investment during this and the next three years.

Six billion dollars—That's big money! It's 40 per cent of the plant account of the electric utility industry at the end of 1947. It's a new investment of over $42 for each man, woman and child in America. It's the biggest challenge, as *Electrical World* has said, ever made of any industry. But it has been accepted—accepted out of confidence in your ability as salesmen to do it again. Orders are placed, construction is being completed at the rate of more than 1½ billions per year, much more is well under way, while only a little still is to be planned.

What does 6 billion dollars mean to the salesman? It means sales performance now—more effective and more resultful sales performance than even your best of the past. Sales performance that results in mounting revenues and kilowatt-hour increases year after year is what it takes to instil confidence of investors in our industry as a good, sound investment field.

What of these investors? How much must we depend upon them for the money necessary for this huge construction program? Nearly $3.9 billions of new securities must be sold to investors in four

TABLE I—CONSTRUCTION PROGRAM AND CASH REQUIREMENTS, 1948-51.

	1948 - 1951 Millions of Dollars
1. Construction Program	
Gross Additions	$ 6,000
Gross Retirements	600
Net Plant Additions	$ 5,400
2. Cash Requirements	
4 Year Construction Program	$ 6,000
Cash Generation within Companies in 4 year period	2,120
Cash to be Raised	$ 3,880

TABLE II—GROWTH IN CAPITALIZATION RESULTING FROM $6 BILLION CONSTRUCTION PROGRAM.

Total Capitalization	Millions of Dollars		
	* 1947	Estimated Additions 1948-1951	1951
Debt	$ 6,481	$ 2,190	$ 8,671
Preferred Stock	2,119	1,090	3,209
Common Stock	3,811	600	4,411
Surplus	1,387	500	1,887
Total	$13,798	$ 4,380	$18,178

* Additions during 1947 partly estimated.

years to finance this program. But other industries including other utilities will be in the same money market for their capital requirements. Let us examine the total capital requirements of industry.

To support today's business level of $200 billions of gross national product will require $20 to $22 billions of new private capital investment yearly. There are two sources for this capital: a) cash generation within businesses through depreciation reserves, retained earnings, etc., and b) the sale of new securities or bank loans. For business as a whole, cash generation at the present time within business, which can be used for construction and plant expansion, will aggregate $14 to $15 billions, and hence the remainder of $7 billions must be provided by the private investors.

Now let us compare the electric utility industry with industry as a whole. We have a program of $1½ billions per year but cash generation within the companies will provide only ½ billion per year. Thus our needs of new private capital are nearly 1 billion a year or *nearly 1/7 of the total new capital needs of all industry*. We must depend on private investors. And that poses a problem for salesmen.

Increasing gross revenues is your job. Only from gross revenues can come the moneys needed to fulfill commitments that a $6 billion plant expansion program entails. What are they?

a) Additional net new plant of $5.4 billions means *additional* depreciation accruals of $120 to $130 millions.

b) Additional interest and dividends on new bonds and preferred stock to be issued is estimated to be $125 millions.

c) Additional net earnings which should accrue to the common stockholder to compensate him for new investment made and earnings retained and reinvested in our business should aggregate $150 to $200 millions.

This is the added net earning ability which the industry must have in order to earn a fair return on the additional property values which the investors in our industry will have entrusted to our charge.

It's a great responsibility—the greatest in many long years of sales successes. We had better be about this job.

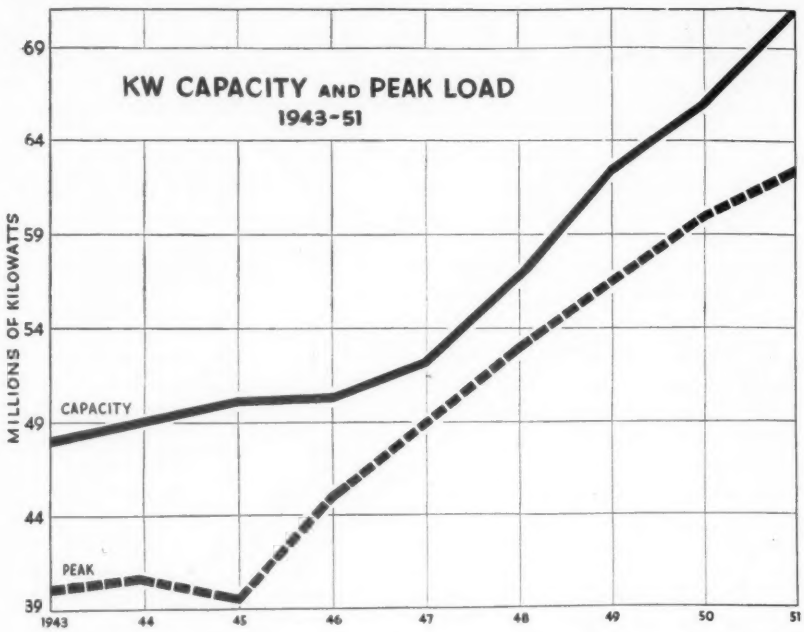


Fig. 1—Kw Capacity and Peak Load for the Electric Utility Industry, 1943-51.

It takes time to organize and plan sales programs. And time is consumed to reach the highest sales productivity for a program.

That is why the *Planned Lighting Program* was made available to member companies even in the face of reduced generating capacity reserves. That is why the Directors of Edison Electric Institute approved at their last meeting the *Electric Kitchen Program*.

What does 6 billion dollars mean to the salesman? It means that kind of selling that makes every industry more efficient, every phase of commerce and every farmer more productive and profitable, every home a still better place in which to live because of more complete electrical living—the kind of service selling that will forever enable America to show up and give the lie to the drumbeaters of police states who tell that America is decadent. Yes, the kind and greater degree of sales performance that will *keep* this industry strong and ready for the next and still greater challenge.

GE and EEI Commercial Division Sponsor Industrial Electric Heating School

THE Industrial Power and Heating Section of the EEI Commercial Division has arranged with the General Electric Company for an Industrial Electric Heating school to be held in September of 1948. The school will cover a period of one week and the only cost will be the traveling and living expenses of the men selected to attend. The proposed location for the course is the Adirondack Inn, Sacandaga Park, New York, which is about forty miles from Schenectady.

Electric heating is one of the major markets for electric service and it can be made a more profitable one. The last Heating School was held in 1937. Many new applications, such as infrared and high frequency heating, have been developed and their uses expanded within the eleven-year period. There are numerous other electric heating applications offering outstanding opportunities for selective load building wherein the most revenue will be realized per dollar of investment. By attending this school, power salesmen can become better acquainted with the possibilities of this broad field and learn the proven methods of sales approach.

Emphasis will be placed on such important factors as comparative operating cost, savings realized, increased and higher quality production, and other customer benefits essential to successful selling.

Sales *Are* Important

By Ralph P. Wagner
Chairman, Commercial Division General Committee, E.E.I.

An address presented before the Fourteenth Annual E.E.I. Sales Conference at Chicago, Ill., on April 7, 1948.

SALES *are* important to this industry—although this fact may not be apparent to some executives who have for months been concerned almost entirely with capacity difficulties. Indeed, sales promotional programs and intensive selling are intimately related to the present drive to increase our capacity to meet customer demand.

When we examine this hectic period through which we are now passing against the background of our industry's history, we can see that it had a previous parallel which is amazingly similar. All basic industries such as ours go through cycles of growth which have a close resemblance...the only surprise being that no one industry appears to profit from the experience of others.

The Early Years

The phases of growth through which our industry has progressed are remarkably clear. We first struggled into existence with Edison's brush generator in New York City in 1882. For many years we fought to stay alive, against powerful and long-entrenched opposition. We struggled as individuals, with hardly any interconnections or mutual use of capacity reserves. Our trail could be easily followed by the bones of bankrupt companies.

It took a world war — the first we fought to make the world safe for democracy — to make us a real factor in all fields of American life. We staggered under the unexpected load, but came through without a major failure. It is interesting to note, however, that in the price inflation immediately following World War I, for the first time in our history, we were forced to increase the price of our service.

Contrary to our expectations, the load we were carrying did not drop at the war's end, but continued to climb at an amazing rate. Remember, this is the aftermath of 1917-1918 — although these events seem so familiar that they appear to be much more recent!

And, as a result, during the 1920's, we were able to reduce our rates substantially. High production, increased efficiency, improved load factors and lower equipment costs all contributed to this desirable end, as did the hard work and aggressive pioneering of our sales forces.

Our earnings climbed. If you read certain magazines and listened to certain politicians, the 'public be damned' attitude crept into our operations. At any rate, far too many of our customers thought that it did—which amounts to the same thing, so far as the effect upon us was concerned.

And so, during the terrible Thirties, our record of reduced prices and ever-increasing use of our versatile product did not save us from the dubious honor of being public whipping boy No. 1. Possibly—just possibly—we deserved it. Like the whippings we used to get, it may have done some good, always assuming that we didn't forget the lesson.

World War II presented us with a beautiful opportunity to recover some of the lost ground. So far as supplying ample power everywhere was concerned we responded magnificently. All demands upon us were met. Prices continued to drop. Forbidden to install new capacity, our engineers used our resources as no one had ever imagined possible. Our war record had no equal.

War-Bred Mistakes

But where the public was concerned, we repeated some of our mistakes of the Twenties. War tends to breed autocrats, in and out of uniform. It was so easy for us to blame delays and unfilled promises on priorities—labor shortage—lack of materials.

And these bad habits persist even today. A glance at the present public contacts of your companies may surprise you. You may see indifference, arrogance and all the other faults that contributed to the debacle of the Thirties.

When viewed at a given moment, public opinion seems slow to change. Once it begins to change, it is as hard to stop or divert in its course as a tidal wave. In the Thirties almost every hand seemed against us—and we might wake up one morning to find the same situation.

Now in this post-war period we are coming to an adult stage of our existence. No longer can we rely upon a flood of natural growth to cover our mistakes. Our year-end sales figures will soon depend for annual increases more upon our aggressive, well-organized sales staffs than upon the natural increased demand of our customers.

No Need to Sell?

True, the present demand for our services strains our resources. So huge is the buying urge that we are mere order-takers with no need to sell—at the moment. True, our rates are not rising—but they *are* teetering. A major change in the direction of rates seems inevitable, if other prices entering into the cost of our doing business continue to double and triple.

Our efforts to reduce production costs are continuing. Steam plants are expected to increase their efficiency in pounds of coal per kilowatthour, from an average of 1.31 pounds to 1.1—a 20 per cent improvement. But labor costs are higher —fuel costs are astronomical—and new power plants cost twice the 1939 figures.

Yet at this unfavorable time, we are rushing to build new plants and expand present stations, merely to keep ahead of demand. We have embarked upon a tremendous construction program, which will mean an additional capital expenditure, including replacements, of $6 billion. We have a total of 15 million kw of new capacity already on order—representing, with what we installed in 1947, a 42 per cent increase in capacity over our 40 million kw of 1946.

We must realize that to pay for this high-priced capacity, we will need a new gross revenue that far exceeds what we would normally need to justify our investment.

Any way we look at this problem, the answer must lie in selling—either the selling of much higher rates—or selective selling of higher priced classes of service, that will enable us to reach this higher gross.

Either of these possibilities imposes on us the greatest sales responsibility ever to face any industry. We can, of course, point to the present figures of demand as an indication that we are well qualified to solve this problem—but could it be that our customers have done a large part of this job for us?

We face this imminent and probable call to action almost unprepared. Our sales forces of 1948 are far different from the pre-war vintage, which was trained to sell and hardened to sales resistance. Today we have thousands of men and women, many of them only half trained, most of them with practically no real selling experience.

Months and months of hard work will be needed to bring the average utility sales staff up to a point that even approaches the normal pre-war efficiency level.

Executive Unpreparedness

Our state of unpreparedness extends into executive offices. Many utility sales managers are literally afraid to sell—afraid to do their jobs—afraid to plan ahead for the day when their jobs will be the most important in the company.

Management's almost exclusive concentration upon the capacity problem has slowed up our promotional programs, and almost entirely halted utility selling.

Yet, when we consider the uncertainties of the future, we can see that there is no choice as to selling or not selling. We must consider every last kilowatt of this gigantic new capacity as a challenge—a challenge to our ability to keep it busy with profitable load that will be needed to keep our companies healthy. Our customers may do this job for us, and they may not. We cannot safely rely upon anything other than our own ability and hard work.

In view of these facts, our obligation is clear. We must get ready to sell. We know that it takes time to find and train salesmen, to build efficient, well-organized sales forces, develop promotional programs, and in general, get ready to do a job of load building.

But much of our management does not fully appreciate that we will need time to prepare. For profitable load building in 1950, right now is none too early to begin planning and preparation. Unless you have established your needs, you may be called on the carpet one day and told to start selling—and your explanations of the time you will need may fall upon unfriendly ears.

We must convince management that to have an adequate sales force active in time to do the selling needed to service the new capital expenditure we must start today. We must tell them to let us sell.

This selling job can and will be done. It can and will be done on a sound financial basis. But it is going to take many well-trained, capable men, and the best that is in them. There is no time to lose.

Indiana Electric Association Young Men's Utility Conference

APPROXIMATELY 240 representatives of Indiana electric utility companies attended the Eighth Annual Young Men's Utility Conference, sponsored by the Indiana Electric Association, which was held in Ipalco Hall, the employees' recreation center of the Indianapolis Power and Light Company, on April 13 and 14, 1948.

D. C. Hess, vice-president of the Indianapolis Power & Light Company, acting for H. T. Pritchard, president, welcomed the delegates on behalf of the host company.

C. K. Graham, commercial manager of the Southern Indiana Gas & Electric Company and president of the Indiana Electric Association and J. G. Mooney, vice-president of the Indiana & Michigan Electric Company at South Bend and of the Association extended greetings to the delegates, reminding them that "the future of our industry and all industries depend a lot on the qualifications of young men and their willingness to accept responsibility."

P. J. Zuercher, engineer of the Indiana & Michigan Electric Company on behalf of R. W. Fackler, superintendent of system operations, gave a graphic discussion of the interconnected transmission system.

E. D. Anderson, vice-president of the Northern Indiana Public Service Company on the subject "What Are We Doing For The Boss?", pointed out that in this case the "Boss" is the customer. The paper was devoted to public relations and stressed the importance of personal contact in building good will with the general public.

Colonel H. S. Bennion, vice-president and managing director of the Edison Electric Institute talked to the Conference on "Electric Power Capacity" on the national level.

A demonstration on the subject "Electric Living Through Adequate Wiring" was presented to the Conference by Walter C. Brown, sales representative of the Public Service Company of Indiana, Inc.

In opening the second business session J. G. Dickinson, superintendent of accident prevention of the Wisconsin Electric Power Company reviewed the accident record of the industry.

Carl F. Jensen, district engineer of the Westinghouse Electric Corporation presented a demonstration showing the results of research and experiments in the various applications of electric lighting.

P. W. Ross, vice-president and assistant to the president of the Indianapolis Power & Light Company had as his subject "Is Employment In the Electric Industry Attractive?"

E. J. Dyess, division manager of the Southwestern Gas and Electric Company pointed out that the advance of public power offers a definite threat to the privately owned electric industry.

D. W. Michener, associate director of research of the Chase National Bank opened the last session of the conference with a discussion of economic conditions.

The Conference closed with a talk by Ashton B. Collins of Reddy Kilowatt Service, who stressed the need for a continuous adequate presentation of the electric utility industry story to the general public.

A banquet was held on the evening of the first day of the Conference at which Wallace O. Lee, vice-president of the Indianapolis Power & Light Company reviewed previous Conferences that have been held and introduced Henry F.

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Relation of the Power Salesman to The Utility Problem

By W. C. Beckjord
President, Cincinnati Gas & Electric Company

An address presented before the Fourteenth Annual Sales Conference, E.E.I., at Chicago, Ill., on April 6, 1948.

OUR industry is in the midst of a great expansion program. During 1947, approximately 2 million kw of new capacity were placed in service, and commitments for additional capacity during the next four years amount to 15 million kw.

Prior to World War II our industry had reached what could well be considered a mature development. During the war, electric power was available in adequate capacity for war production and enabled our country to arm itself and our allies and win the war. Starting from a base of this kind, a 40 per cent growth in a period of five years is little short of phenomenal.

During 1947, while we were adding 2 million kw of generating capacity, our peak loads increased about 4 million kw.

Customer Demand on Reserve Capacity

Our customers have been able to secure equipment to use our service with deliveries of from six months to a year. In contrast to this, the delivery of turbogenerators is approximately three years. As a result, we have been operating with inadequate reserve capacity and with an abnormally high ratio of kilowatthour sales per kilowatt of installed capacity. Our earnings per dollar of invested capital are higher than normal because of this high ratio of sales to capacity.

The cost of labor, fuel, and maintenance material has increased at such a rapid rate that these increases have more than absorbed the increased earnings which should result from the high loading of our capacity.

The capacity which we will add in the next few years will represent a unit cost approximately double the cost of our present plant.

All of these factors tend toward a higher investment cost, a higher operating cost, and a lower rate of return.

It is estimated that the construction program of our industry, during the next four years, will require the investment of over 6 billion dollars. Even conditioned as we are by New Deal financing to large figures, 6 billion dollars still represents a lot of money.

President Oakes has estimated that $2.1 billions will be available from depreciation reserve and surplus, and that $2.2 billions will be raised by the sale of bonds, $1.1 billions by the sale of preferred stock, and $600,000,000 in common stock.

The High Cost of Money

Recent trends indicate that the cost of money is increasing and these securities must be sold in a highly competitive money market. If the present trends continue, and there appears to be no reason why they will not, our earnings on present rates will not be sufficient to attract this new capital.

We have had many problems in the past and we have solved them. We must and will find a way to solve this problem. It appears that there are four matters to which we should direct our attention:

1. Every operation must be studied to the end that every possible economy in design, construction, and operation is utilized to the fullest extent.
2. We must study ways and means of increasing kilowatthour sales per kilowatt of plant capacity.
3. If these first two measures do not provide an adequate return on the investment, we must study our rate structure and adjust those rates which are not profitable under these new conditions.
4. Public relations are of prime importance because of the large financing program ahead of us, and more emphasis must be placed upon this phase of our operations.

Economy of operation is most important. Any business which has doubled its volume in the past ten years and expects to further increase it by 40 per cent in the next five years must constantly analyze its operations. Practices which were sound a few years ago are no longer suited to these new conditions.

While this principle must be applied on a company-wide basis, there is a direct application to power sales work. The methods and techniques which were successful at the time we were closing down isolated plants are not applicable to today's conditions. A different type of man, trained along much broader lines and fitted to assume greater responsibilities, is required to do the job which is ahead of us.

There has been much talk about selective selling as a means to secure a higher rate of return. There are certain temporary conditions under which selective selling is most valuable, and its possibilities should be investigated by everyone in our sales departments.

It does not appear to me, however, that selective selling has any part in our long-term future planning. Ours is a growing business and we should exploit to the fullest any and every possible use of electrical energy. If our rates are properly designed, each class of business should make its proper contribution to net.

Increase Kwhr Sales Per Kw

However, if future rates are not to feel the full impact of the higher cost of construction, we must find ways and means of increasing the kilowatthour sales per kilowatt of generating capacity. By increasing this ratio we provide a larger division for mounting fixed charges.

The power salesman is in constant contact with our industrial customers and is familiar with their manufacturing processes. A responsibility rests upon him, therefore, to develop new uses for electrical energy, the supply of which involves no demand responsibility.

Great strides have been made in this direction, as evidenced by the fact that

the kilowatthours per kilowatt of installed capacity increased from 2400 in 1926 to 3790 in 1946, showing an increase of 58 per cent in this 20-year period. The margin, however, between the present figure of approximately 4000 and the ultimate of 8760 at 85 per cent, or 7450, is large and presents a challenge to our industry in general and to the power salesman in particular.

The Rate Problem

Now let's look at this matter of rates. Our industry has a long and enviable record of rate reductions. This record has been so long and so continuous that our customers have come to expect this as a phenomenon peculiar to our business.

In the past, largely due to the effective efforts of our sales organizations, we have been able to more than offset rising costs with increased sales. The point has now been reached in many companies where increased sales will have the effect of decreasing rather than increasing net. This results from a combination of increased operating and construction costs. Such companies face the necessity of increasing rates.

Taking the five year period from 1935 to 1939 as a base, the cost of living has increased 67 per cent while the cost of electricity has decreased 11 per cent. We need make no apology, therefore, for the modest increase which seems to be indicated in some electric rates.

Price increases are never popular and we face a definite problem in getting our customers to accept such increases without a loss of the customer good-will which is so vital to our operations.

If, immediately prior to or shortly following the announcement of an increase in the rate to an industrial customer, a power salesman makes a suggestion which materially reduces that customer's cost of operation, any loss of good-will resulting from the rate increase will be neutralized.

Because of the long record of rate reductions, it is important that our power salesmen be fully familiar with the conditions which make a rate increase necessary. The power man should then explain the situation fully to his customers, drawing parallels with their own experience.

The huge expansion program of the next four years will require the raising of nearly $4 billions in new capital. The average rate of a billion dollars per year exceeds by a substantial margin the rate established from 1923 to 1929. Since that period of capital expansion, the activities of the New Deal have done much to destroy the confidence which the investing public has in our securities.

If we are to market our securities on a favorable basis, we must prove that we can solve these problems which now beset us, and we must have public opinion on our side.

National advertising programs are helpful to this end, but the real effective work is done on the local level. To a large extent, public relations are built on a person to person basis. The power salesman has a large share of the responsibility in this program of better public relations. By the very nature of his work he is thrown in contact with men who are influential in molding public opinion.

In the modern concept, the power salesman is a man who understands his customer's business, and by past performance has won the confidence of the customer. He is trained in production methods and applies this knowledge to help his customer increase production, reduce cost, or improve product quality.

If this job is properly carried on and if the power salesman is supplied with information as to the utility company's problems and objective, he can and should be one of the most effective workers in building good-will.

During recent years, interest has been mounting in the field of industrial development. It appears that our industry can and should perform a real service in this field. In my opinion, the programs which will prove successful will be those which are based upon research. With this research as a background, the program is then directed to develop, within the local area, those industries which can prosper under the local conditions and which will supplement the existing industrial economy.

The power salesman, therefore, must assume a large share of the responsibility for the solution of some of the problems which face our industry. The power salesman has always done a good job and we can rely upon him in the future.

14th Annual E.E.I. Sales Conference

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an all-inclusive nature. It might take a generation or more to throw them off.

"It was the free enterprise system, energized by individual initiative, which armed eleven million Americans and as many more of our Allies. Starting from scratch, it built a navy larger than the combined fleets of the rest of the world. It replaced 20 million tons of shipping sunk by enemy action, and added another 20 million tons to the allied merchant marine. One would think that the war had left the collectivists in this country not a leg to stand on," Mr. Letchfield declared.

Horace Russell, general counsel of the United States Savings and Loan League, Chicago, said that the 'package mortgage,' through which the home is appraised as a unit, to include the house itself, electrical equipment, furniture and other needs, and is then financed in one transaction with a single monthly payment, offers by far the best means of providing complete homes for the families of average means. He urged utilities to give the package mortgage their full support.

The important subject of better methods of compensation for salesmen was covered by J. C. Aspley, President of the Dartnell Corporation, Chicago, in the concluding talk of the morning session. A merit-rating plan, under which salesmen would be paid a salary adjusted semi-annually on the basis of their performance during the previous six months was described as a likely replacement of the quota system by the speaker.

Luncheon Session

The concluding luncheon session was marked by the presentation of a certificate to Mr. Wagner, whose term of office as chairman of the Commercial Division General Committee expires next June. Henry Steinmetz, vice-president of the Public Service Electric & Gas Company, presented the certificate, and paid a tribute to Mr. Wagner's hard work and aggressive leadership of the Commercial Division during the past two years.

The featured speaker at the luncheon session, Charles E. Wilson, president of the General Electric Company, told his audience that GE is back to normal conditions of supply and demand in 75 per cent of its electrical apparatus line. The company is now building a $30 million turbine plant to expand its output of generating equipment, he said.

Long Range Growth— A Challenge To Utility Sales Forces

By Walker L. Cisler

Executive Vice-President, The Detroit Edison Company

An address presented before the Fourteenth Annual Sales Conference of the E.E.I., held at Chicago, Ill., on April 7, 1948.

THE electric utility industry in the United States is today engaged in the greatest expansion program in its 69-year history. It calls for the addition of more than 18,000,000 kw of generating capacity. Approximately 80 per cent of this will be added to the private enterprise systems, and 20 per cent to government-owned systems, which is about the same proportion as their presently installed respective capacities.

On the part of the private utilities, it means the expenditure of more than $1,000,000,000 per year. This program does not include new capacity additions to industrial plants, transportation systems and other so-called non-electric utility enterprises which might well add several million kilowatts more of capacity throughout the country.

Thus, a vast amount of new electric power resources will be added in the next 5 years to serve existing and new domestic, commercial, and industrial loads. It will also restore a normal amount of reserve which, because of unprecedented postwar growth, has been reduced to limits which are much too narrow.

Electric Powered World

The world has literally become "electric power conscious." Almost in every country of the world we find an electric power expansion program. Russia, I am confident, is aggressively pursuing an extensive program of electric power development. Among the 16 nations of Europe and Western Germany there are two programs: a national plan adding 21,445,000 kw, and an international plan adding 2,306,000 kw. Together they will provide for the installation of 23,751,000 kw of new capacity.

The international program requires large power equipment from the United States which could be a potential impact on our own program if the requirements are not carefully reviewed and coordinated. From the standpoint of our responsibilities and efforts to make other democratic nations stronger, it is extremely important that there be no interference with our own program. If there is, we will not be able to meet our own needs and those of others. India, Egypt, China, Mexico, Canada, the Latin American Republics, and other countries are also striving to develop their power resources.

In the United States last year, we used about half as much electric energy as did the entire world in 1946. Our consumption in 1947 was 310 billion kwhr. This is a very significant figure and represents more than 2,000 kwhr a year for every man, woman and child in the country. This ability to produce and consume electric power in such amounts forms one of our most formidable strategic weapons for both our defensive and offensive requirements.

Domestic Consumers in Paris

At the time of the liberation of Paris, in August, 1944, the availability of electric power was at a low ebb. There had been a steady decline since almost the beginning of that year due principally to a lack of fuel resulting from disruption of transportation, and damage to transmission lines. Only the bare essential services could be provided. Immediate steps, and those taken earlier, enabled increased electric service very soon thereafter. The availability of electricity continued to increase until by the beginning of 1945 electric energy consumption was about 38 per cent higher than in 1938, which was considered the last normal prewar year.

Why was this? It was because the people of Paris in addition to reviving their commercial and industrial needs, were using the supply of power to provide three very essential domestic requirements. Out of the outlets in their homes came: 1) energy for lighting, 2) energy for cooking, 3) energy for heating. No other source could so conveniently provide those essentials. It seems to me that such an experience should be kept in mind when considering our future load growth.

Fuel is going to have an important bearing on the future loads of our systems. We are all aware of the difficulties experienced in many areas in obtaining adequate deliveries of fuel whether gaseous, liquid, or solid. These problems are faced by all three general classes of consumers. It is not unreasonable to expect that consumers will turn to electric power to supply their energy and heat requirements which might otherwise be obtained directly from the fuel. This is an important consideration for sales forces.

Atomic Fuel

What are the prospects for the use of nuclear fuel or atomic energy in replacing presently used means of generating electric power? Will industry be able to replace its existing supply from utility systems by means of nuclear fission? In this connection, a recent report of the Atomic Energy Commission to the Congress stated: "Assuming even a most favorable and rapid technical development along these lines a word of caution is needed as to time scale. We do not see how it would be possible under the most favorable circumstances to have any considerable portion of the present power supply of the world derived from nuclear fuel before the expiration of 20 years."

Load Growth and National Defense

Consider the importance to our national defense of the future load growth of our systems. One could well say: "What does this have to do with our peacetime economy? What bearing does it have on our sales forces?"

A country to be defensively strong must be industrially strong. No country can be industrially strong unless it has an adequate supply of electric power. No country can afford to pay for a vast de-

fensive program or endeavor to make other democratic nations stronger unless it is industrially healthy. Consequently, our sales forces must be keenly alive to their responsibilities for envisioning requirements for lighting and heating, and for pointing out to top management that our systems must be prepared to meet all reasonably possible loads.

In planning our peacetime expansion program, we must not lose sight of what our needs may be in preparing for a future conflict using equipment and weapons of far-reaching significance. In this aspect of our expansion, we should be influenced by the advice of those who are directly responsible for the military advances of the country.

Our power systems' reserve capability should be sufficient not only to meet all peacetime requirements, but also to provide for a "defense reserve" for use in an emergency. This reserve should be built right into the systems and form an integral part of them. It should be recognized that this is purposely done and with the full knowledge and concurrence of all interested parties—the consumers, the municipal and state regulatory authorities, and the federal agencies involved. Although it means added cost of investment, operation and maintenance, it can be compensated in part at least by peacetime utilization which would not impair its emergency availability.

Summary of Preparedness and Electric Power Resources

1. Throughout the world there is an increasing consciousness of the importance of electric power to the social, economic and political future of all nations. Because of our world-wide responsibilities, it is probably nowhere as important as in the United States.

2. The world situation is such that we must maintain a strong defensive and offensive position of adequate preparedness. To do this, we must be prepared commercially and industrially, and expand our electric power resources to meet not only peacetime requirements, but also to provide a "defense reserve" for use in an emergency.

3. The margin of electrical system capability needed to provide a "defense reserve" should be built right into the systems and form an integral part of them. This means added cost of investment, operation, and maintenance which in part can be compensated by peacetime utilization which would not impair its emergency availability.

4. The increasingly difficult fuel situation in many areas emphasizes a possible trend toward greater use of electric power to supply energy and heat requirements which otherwise would be obtained directly from gaseous, liquid, or solid fuels.

The Future in Atomic Power

5. The use of nuclear fuel for domestic, commercial, or industrial power purposes will not be realized in the foreseeable future. It is not to be considered in present day planning. There are many problems to be met before there can be economic utilization.

6. Our industry has a record of achievement and service to our customers of which we are proud. Our progress and development has been that of the nation itself. In this our sales forces have played an important part. They should continue to do so on a program constructively conceived, sensibly and aggressively followed, and fully integrated into the planning of future load growth.

7. We can best meet the challenge of those who would oppose us if we look ahead. Our position will be strongest if we are fully prepared to meet not only what we, as an industry, must provide, but also that margin of service beyond which leads to public approval and support.

8. Our nation has become great for three main reasons: 1) our democratic form of government, 2) our vast national resources, 3) our great industrial productive capacity. We must all be alert to the protection of these. It is a challenge we cannot fail to meet.

Announcing the First Annual

PLANNED LIGHTING AWARDS

For Outstanding Promotion of Planned Lighting In Residential, Commercial and Industrial Markets

National recognition and cash prizes, in addition to high-profit load and satisfied customers, await electric companies and their personnel achieving the greatest success in Planned Lighting promotion during the twelve-month period ending February 28, 1949.

The Planned Lighting Awards, sponsored jointly by Edison Electric Institute and the Better Light-Better Sight Bureau, offer a total of $1,400 in cash prizes. First and second awards of $200 and $100 respectively will be presented with certificates for the best residential, commercial and industrial Planned Lighting programs.

And that's not all . . . over and above these six prizes, an engraved bronze plaque and $500 will go to the electric company with the best program in all three markets combined.

Educational activities, sales promotion and advertising, and cooperative programs with contractors, retailers, etc., are among the factors which judges will consider in selecting the winners. For the terms of the Planned Lighting Awards, address the Commercial Director, Edison Electric Institute.

Edison Electric Institute — Better Light-Better Sight Bureau

Indiana Electric Ass'n Young Men's Utility Conference

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Schricker, vice-president of the Fletcher Trust Company and former Governor of Indiana as the principal speaker.

The Conference was presided over by young men from member companies of the Association. John C. Dewenter, Public Service Company of Indiana, Inc., presided at the first business session, John E. Barkhaus, Indianapolis Power & Light Company during the banquet, V. K. Brownewell, Indiana General Service Division of the Indiana and Michigan Electric Company at the second business session and L. F. Yuknis, Northern Indiana Public Service Company at the last session.

Prospects for Future Industrial Power Load

By C. B. Stainback

Industrial Syndicate Manager, Westinghouse Electric Corporation

An address presented before the Fourteenth Annual E.E.I. Sales Conference at Chicago, Illinois, on April 6th, 1948.

AT the Future Power Market Forum, held at the William Penn Hotel in Pittsburgh in January, 1944, I made the following three statements:

First, that industry is the best potential customer of the electric utility.

Second, that the future industrial market will approximate the consumption of electric power during the height of the war era.

And third, that at the close of the war we would make available to your customers new products, as well as improvements in existing products, which would in turn enable your customers to produce a *better* product—to produce it in *less* time and to produce it at *less* cost.

My first point, that industry is the best potential customer of the electric company has been amply proved.

As for the second, I am sure you will allow me to point out that the electricity utilized by industry had already equalled 53 per cent of the total generated, in the immediate postwar period. In the immediate prewar period it was 48.5 per cent, and in the peak year of the war, 56.2 per cent. It is my opinion that industry will continue to be an ever-increasing factor in the utilization of all kilowatts generated.

Also may I say that our estimate made at Pittsburgh in 1944, for the immediate postwar period, was 147 billion kwhr for industrial consumption and this checks reasonably closely with the figures for 1946 now given out by Secretary of the Interior Krug, of 150 billions of kilowatthours, and the figure obtained from the *Edison Electric Institute Statistical Bulletin* and the *Survey of Business* of 145 billion kwhr.

And our third statement, that we would make available to your customers new products and improvements in existing products, came into being as our *Productive Power* program, about which you will hear a great deal more in the years to come. Our version of Productive Power was based upon the many constructive suggestions made by the electric utilities so that it should be more aptly designated as your version of Productive Power and was given you in a preview at the Waldorf Astoria Hotel in 1946.

Prospects for Future Load

So much for the past, and no doubt you think it high time that I get a little closer to my subject: "Prospects for Future Industrial Power Load."

We have again divided industry into 6 general classifications, namely: General Mill, which includes paper, textile, rubber, and food; Chemical and Petroleum, which includes the light metals, such as aluminum and magnesium, and the specialty chemicals such as chlorine and caustics; Steel Mill and Metal Working; Mining, both coal and metal; Automotive, Shipbuilding and Aviation; and Miscellaneous.

In the following table the power used by each of the 6 major industrial classifications is given in percentage of the total electric power used by industry in the prewar, war and postwar periods:

TOTAL INDUSTRIAL ELECTRIC POWER UTILIZATION

Classification of Industry	*Prewar* (Per cent of Industrial Power Used)	*War*	*Postwar*
General Mill	35.0%	24.2%	31.0%
Petroleum and Chemical	23.6	33.5	26.0
Iron and Steel	19.5	21.2	24.0
Mining	10.4	7.6	7.0
Automotive, Aviation and Shipbuilding	3.5	7.0	5.6
Miscellaneous	8.0	6.5	6.4
Totals	100.0%	100.0%	100.0%

During the prewar period the General Mill group were the largest users of electric power in industry, followed by Chemical and Petroleum, Steel Mill and Metal Working, Mining, Automotive, Aviation and Shipbuilding and Miscellaneous, in that order as seen in the table above.

During the war period Chemical and Petroleum was the Number One customer of the utility, followed by General Mill, Steel Mill and Metal Working, Mining, Automotive, Aviation and Shipbuilding and Miscellaneous, as shown in per cent of total industrial power in the table above.

In the postwar period we predicted that General Mill would again be the Number One customer, followed by Chemical, Steel Mill and Metal Working, Mining, Automotive, Aviation and Shipbuilding and Miscellaneous, in that order.

This prediction has been confirmed, for since the close of the last shooting war, General Mill has again become the Number One user of industrial kilowatts. However, the margin is fairly close, and in our Five-Year-Look-Ahead you will find that the Chemical and Petroleum industry has replaced the General Mill industries as the Number One user of kilowatts in industry, with the General Mill group falling in second place, and the remaining classifications in their respective order, unchanged.

In order that we may *all* have the same perspective of the future, let us take these general classifications of industry and see what the future holds for these industries in the way of increased usage of electric power. So we will take them on the basis of their importance to you and discuss them in that order.

The General Mill Industries

The paper industry is largely responsible for the General Mill group of industries returning to first place in the usage of kilowatts. Starved, as this industry was during the entire war, they have gone all-out in their plans to increase production of paper and paper products.

In fact, the nation's paper manufacturers are now engaged in the greatest expansion and modernization program in the history of the paper industry. Output in 1948 will exceed 22 million tons, a gain of some 2 million tons over 1947, and equivalent to 400 pounds of paper for every inhabitant of the United States.

It requires some 50 hp per daily ton of paper produced, so the production of 22 million tons of paper will require not less than 14,636,000,000 kwhr, a desirable potential as well as a growing load for the utility.

Many new plants are going into production in the paper industry, likewise there are many new applications requiring an increased use of electric power. As an example, there is now an almost universal use of hydraulic barking of logs where the bark is removed by jets of water instead of by sawing it off. Increased yield of lumber is sufficient to more than offset the cost of the increased power required. Usually such an installation involves from 1000 to 2000 hp in high-pressure pumps and a 1500-hp, specially designed, chipper motor, so that chipping can be done, thus using the whole log instead of sawing it into small pieces.

Major new capacity in the paper industry is in the South, the Southeast and the Pacific Coast, where the mills, formerly making pulp only, are converting to integrated operation. Within the next year or two every pulp mill on the coast will have its own paper mill to work in conjunction with it.

Lumber and Woodworking Industry

Closely allied to the paper industry is the lumber and woodworking industry. The use of electric power in this industry in 1946 was practically the same as in 1942. However, we can see a brighter future for electric power in this industry because there is a shortage of lumber and consequently we find an ever increasing use of high frequency in the gluing of wood. As wood gets scarcer and quality poorer, it becomes more and more necessary to fabricate the larger pieces by end-and-edge gluing of smaller pieces which makes radio frequency more attractive in making "big ones out of little ones" and uses more power, both in sawing, in planing and in gluing.

Special 10-kw radio-frequency woodworking generators are now on the market. The industry should absorb about 200 such units per year for the next five years, which should add a minimum of 12,000,000 kwhr of electrical energy. Many of the outstanding press manufacturers in this industry have changed, or are in the process of changing, from the use of steel platens to radio frequency in the gluing of wood.

The Rubber Industry

In the rubber industry there has been a continual increase in the number of kilowatts utilized. There will *not,* however, be the tremendous increase in power in this industry as in some others because of the return to the use of natural rubber. Although it takes more power to work synthetic rubber than natural rubber, there will be a steady and continued growth in the use of kilowatts in the rubber industry, a part of which at least is brought about by the use of radio frequency on such applications as the curing of sponge rubber. A typical example is in the processing of rubber mattresses which can be done in six minutes using a single mold, as compared with thirty minutes using an expensive three-part steel mold.

The Textile Industry

The textile industry, in which there has also been a steady increase in the usage of electric power, cannot be classified up to the present time as a progressive industry in so far as electrification is concerned. The textile industry as a whole is just beginning to go from a purely mechanical to an electromechanical industry.

This transition period is similar to the transition period in other industries such as the machine tool and metal working industries. On this basis, and for this reason, we can expect the kilowatthour consumption per *unit* of *product* to increase. This in turn has been brought about by an increased demand for products made by the textile industry, and by many new applications in this industry.

Typical examples of these new applications are a slasher drive, a range drive —a continuous finishing process—which means changing from a batch to a continuous process. Many of these applications were formerly accomplished by other means, but we now find the textile industry turning to electric power as the answer to their many problems in increasing production and improving the quality of their products.

The Food Industry

I have purposely reserved the food industry as last among the General Mill industries. As long as we have to eat there will be a food industry, and I for one am still partial to three square meals a day.

Continued emphasis on the necessity for feeding the world dictates the future trend in this industry. Gradual change from batch to continuous processes will increase slightly the electric power consumption per unit of product.

The kilowatthours consumed in the food industry increase steadily, but how many of us realize that the food industry is *first* in *number* of plants—some 25 per cent of *all* manufacturing plants are a part of the food industry. Also, the food industry is *first* in industries in the field of products produced—some 19 per cent of the *total* value of all products produced are food products. And the food industry is also *first* in the number of electric motors used—14 per cent of all electric motors in use today are in the food industry.

Now—when we combine all of the industries falling within the scope of the General Mill industries—we find that the power consumption is divided as follows:

Motors	88.9%
Lighting	9.3
All others	1.8
Total	100.0%

Fig. 1 shows that these industries used in 1947 some 40,000,000,000 kwhr and Fig. 2 shows that in 1953, *54 and a half billion* kwhr will be consumed, or an *increase* of 14,500,000,000 kwhr over that used today, thus presenting a most profitable and attractive field for future industrial load.

Chemical and Petroleum Industries

And next on our general list of industries is the Chemical and Petroleum industry. This industry in 1953 will be the Number One consumer of kilowatts, outstripping the General Mill industries by a very comfortable margin. So the Number One industry during the war will regain its place, prior to 1953, as the Number One industry in America, from a kilowatt consumption standpoint.

The Chemical Industry

In the chemical industry there has been a definite dropping in kilowatt consumption since the close of the war. This is also reflected in the Federal Reserve Board data, and has been caused by the closing of many high-cost Government plants built during the war at locations

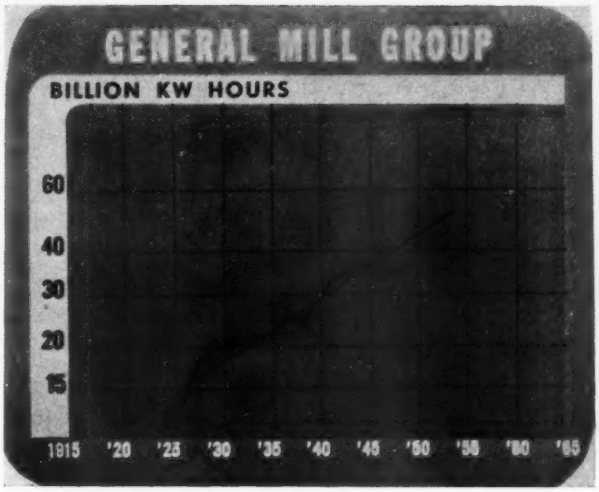

Fig. 1

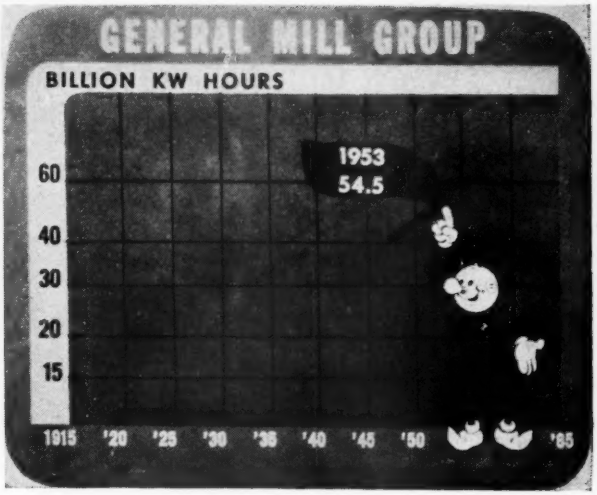

Fig. 2

where it was recognized that the product cost would be high, but these plants were located wherever electric power was available. With the coming of peace, these plants could not be operated economically, and have either been abandoned, or turned over to other companies, for very different purposes than they were originally planned and built.

But this is only a temporary setback, as practically every chemical company in the country is increasing its capacity. The making of chemicals was a business running well over a billion dollars in 1947, some four times the volume of 1939. It is entirely possible to see the present volume *doubled* during the next three years.

High Unit Costs

It is well known that the cost of electrical power used in the chemical industry is a high proportion of the cost of the product. For this reason, this industry has sought locations where electric power can be obtained cheaply. In general the ratio of energy cost to production cost is several times larger than in many other industries. The average electrical power cost of a chemical product is around 10 per cent of the product value, but in extreme cases it may be 20 to 45 per cent of the product value.

Demand for alkalies, for ammonia-soda ash, for chlorine gas and for DDT, will add millions of kilowatts to the present demand.

Another factor which will increase the electric power consumption in the chemical industry is the world-wide demand for *fertilizer*. This in turn means increasing the production of the basic fertilizer chemicals—nitrogen, phosphorous and potassium.

An important intermediate chemical is calcium carbide, which is produced in the electric furnace. This material is important because of its derivative, acetylene gas, which requires 3,000 kwhr per ton to produce. An interesting new development in this field is the electric-arc process for the production of acetylene from natural gas. The Germans used this process during the war to produce part of their acetylene requirements, and much work has been done on the development of a similar process in this country. The first plant, for the commercial production of acetylene, is expected to be in operation this year.

Electrochemical Processes

The electrochemical process group includes: sodium, chlorine, chloride—caustic soda, magnesium, cadmium, hydrogen peroxide and chlorate. The electrothermal or heat group includes: ferrous alloys, abrasives, calcium carbide, carbon products and phosphoric acid.

The direct current required for electrochemical processes is converted from alternating current by motor-generator sets, synchronous convertors and by mercury-arc rectifiers.

The Ignitron mercury-arc rectifier is almost universally used for higher direct-current voltages. Electric furnaces use alternating current usually at 110 to 440 v, reduced by transformers from the delivered voltage. Some processes use special high-frequency and high-voltage equipment, and there is a tendency to consider the use of high frequency for more process work.

The Petroleum Industry

As for petroleum, the refining of crude petroleum has developed into an efficient industrial process requiring technically trained men, plants, electrical and steam equipment where petroleum is processed, blended and combined with other constituents to make a multitude of products.

The kilowatthour consumption in the petroleum industry is constantly increasing and it is of interest to know that since 1939 the electrical power requirements per barrel of crude oil refined have increased from 2¼ to 3½ kwhr, an increase of more than 50 per cent.

It is of further interest to note that the growth of demand for petroleum products in the past two years has *already* reached levels forecast by industry and government experts as normal for 1950.

Our crude oil comes from 425,000 producing wells. Of these, some 50,000 are free flowing and the remainder, 375,000 wells, are pumped. Most of these wells have been powered by gas engines. However, with the increasing cost of gas, more and more lease operators are turning to the use of electricity. In 1938, 10 or 11 per cent of the pumped wells were electrically pumped, while *today* no less than 20 per cent of these wells are electrified.

At present 365 refineries operating in the United States have a crude capacity of 5,192,000 barrels per day. This means kilowatthour consumption of not less than 18 million kwhr per day.

It is estimated that during the next 3

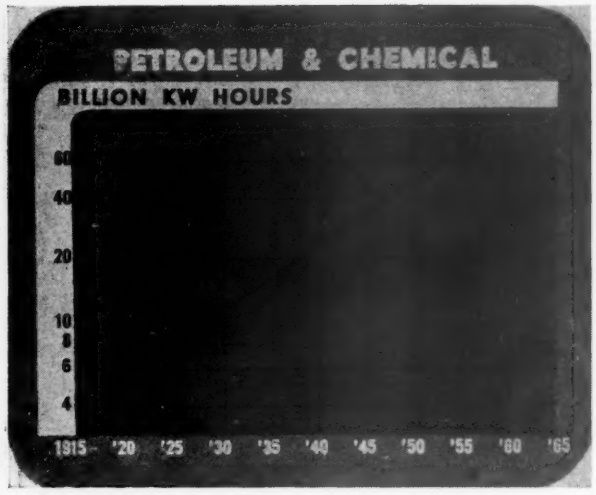

Fig. 3

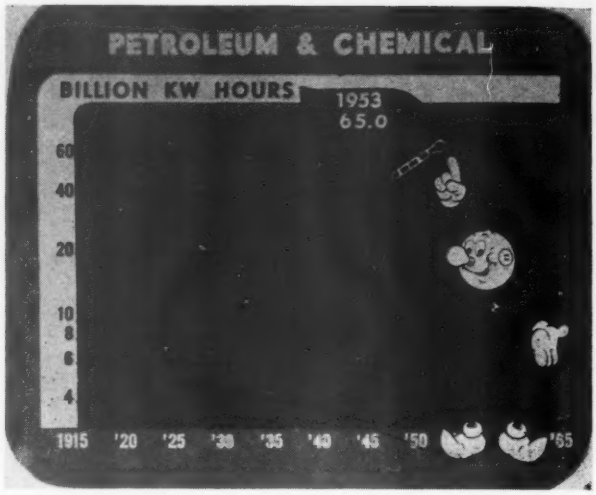

Fig. 4

to 5 years the refining branch alone of the petroleum industry will spend over one billion dollars in new construction, plant modernization and new equipment.

Also, there has been added during the past 4 years another 100,000 hp of new electric pipeline load in addition to the 550,000 hp already installed. We still believe that all of these pipelines will survive and will be operated at practically 100 per cent load. This represents 2½ billion kwhr per year, to which we now add practically another billion kwhr.

It is of interest to note that the power consumption is divided in the petroleum and chemical industry as follows:

Motors	44 %
Electrolytic	31.5
Electric Furnaces	19.5
Lighting	4
Welding and all other	1
Total	100.0%

So in Fig. 3 we see that the petroleum and chemical industry, which in 1947 used some 46.8 billion kwhr, and consumed at its peak during the war in excess of 51 billion kwhr, will in our opinion, use in 1953 not *less* than 65 billion kwhr as shown in Fig. 4.

Iron and Steel Industries

The next group of industries of major importance is iron and steel, which also includes metal working.

In view of the *decreased* demand for kilowatts in the automotive, aviation and shipbuilding industries, they are now included in iron and steel, thus reducing the number of our major industry groups from six to five.

This is a natural thing to do as automotive, shipbuilding and aviation are largely metal working operations and were given a separate classification only by virtue of the tremendous amount of power consumed by these industries during the peak of war production.

The kilowatt consumption of the iron and steel industry and its allied industries dropped off sharply at the time peace was declared with a corresponding reduction in the number of tons of iron and steel produced.

Postwar Steel Shortages

It was not long, however, after V-J Day before there was a recognized shortage of finished steel for the production of automobiles, refrigerators, washing machines and of tin plate for the production of tin cans, with the result that an unprecedented volume of orders for electrical equipment has been placed to enable the steel industry to increase their production of these commodities, all of which is reflected in our modern way of living.

No longer is there a need for armor plate, for shell forgings and for many other war products such as jeeps and tanks. The steel industry had a terrific problem converting from war into peacetime operations. Obviously it requires a tremendously increased amount of power to reduce a ton of steel to wire, or to tin plate or to bobby pins, all of which means greater power requirements in the years ahead.

Increased speed has been the keynote of all of the new steel mills. Tin plate is now being turned out at better than a *mile a minute* clip, double the best rate in 1940 and 8 times as fast as in 1930. In one hour a new tin plate mill can make sufficient steel strip for 750,000, No. 2 vegetable cans. If all of these cans, produced in a single day, were placed end to end they would reach from Chicago, Illinois, to El Paso, Texas.

Another new mill is producing sheet steel of the type used in automobile bodies and refrigerators. This mill is operating at a rate of 3,000 ft. a minute, more than twice as fast as the speediest mill operating in 1940.

Now what does this mean to the utility in consumption of kilowatthours? As an example, on the first mill referred to, the tin plate mill, the main drive motors total 17,550 hp, the *largest* amount of power so far applied to a *single* mill.

As we increase the speed of the main drives it is only natural that the finishing processes, such as cleaning, straightening, cutting and processing, have also increased in speed, all of which means additional horsepower and increases the number of kilowatts used.

Steel Producing Capacity

One of the most controversial subjects between the steel industry and government planning agencies has been the question of the adequacy of present primary steel producing capacity in this country. Regardless of whether or not there is sufficient producing capacity, the steel industry is *adding* to its primary steel producing capacity so that more capacity will be available as needed.

The steel industry is continuing to expand the use of electricity in various heating processes. When some of these developments, which are now in the research laboratories, are made commercially practical, the consumption of kilowatts in the

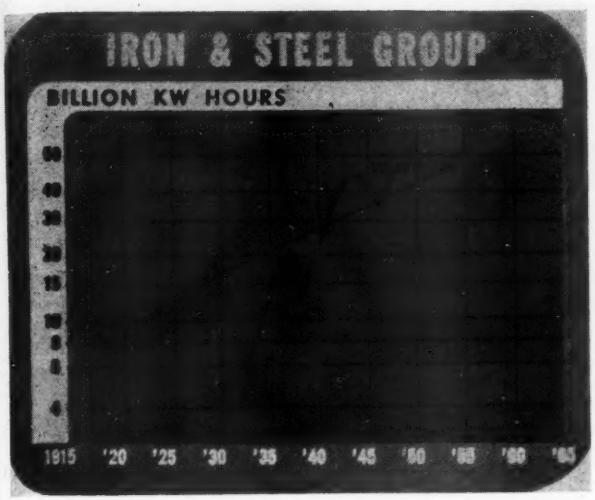

Fig. 5

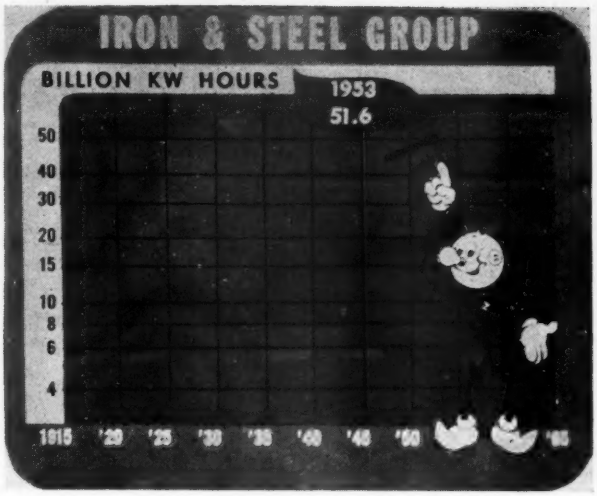

Fig. 6

steel industry will be far beyond any figure that we have ever dared hope for, much less seriously expect.

A forerunner of one such type of operation is the reflowing of electrolytically deposited tin plate, which has opened a new vista in the extension of this process to heating operations such as annealing.

In this group of steel and metal working industries the consumption of power is distributed as follows:

Motors	66.4%
Electric furnaces	19.5
Lighting	10.5
Welding and heating	3.6
Total	100.0%

So the iron and steel industry seen in Fig. 5, consumed some 43.5 billion kwhr in 1947 and reached a consumption of 46.5 billion kwhr during the war period, should consume not *less* than 51.6 billion kwhr in 1953 as shown in Fig. 6.

Mining Industries

And now we come to the last, but by no means least important, group of industries, the mining industry, which includes both coal and metal mining.

We are entering a new era in the mining of our mineral wealth. There are many problems to be solved that offer a friendly challenge to the ingenuity of all those associated with the mining industry.

Mineral reserves are being depleted more rapidly than they are being discovered. This presents the industry with the problem of finding new sources of supply. Old methods of prospecting are now inadequate, necessitating the adoption of new and untried procedures. Even the helicopter equipped with special instruments has been used in a frantic effort to locate more and better ores.

The publicity given to the general scarcity of our better ores and newer methods of prospecting has instilled in the minds of the general public the idea that we are now a "have not" nation. This is not necessarily true. We have an abundant supply of low-grade ores in sufficient quantities to last for many years, and new equipment and methods are available for successfully mining and processing these ores. In substantiation of this statement, one metal mining company alone will spend $20,000,000 for processing these low-grade ores.

It is true that we are approaching the

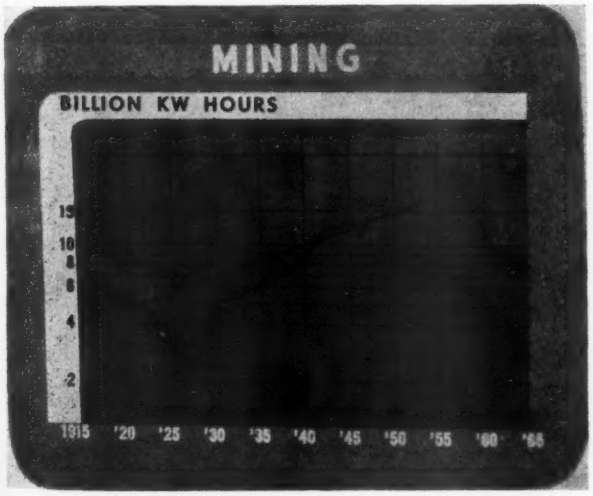

Fig. 7

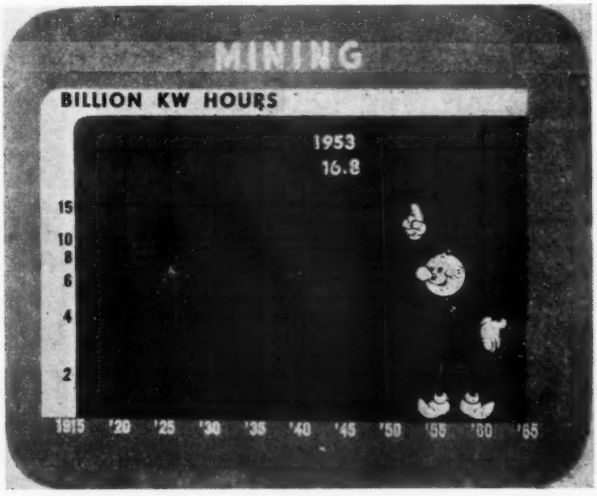

Fig. 8

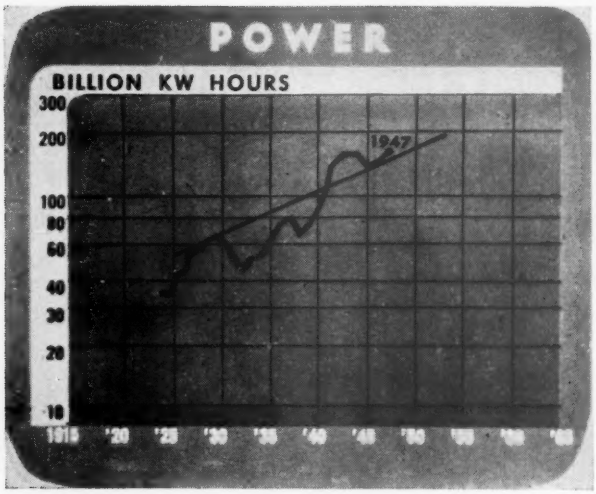

Fig. 9

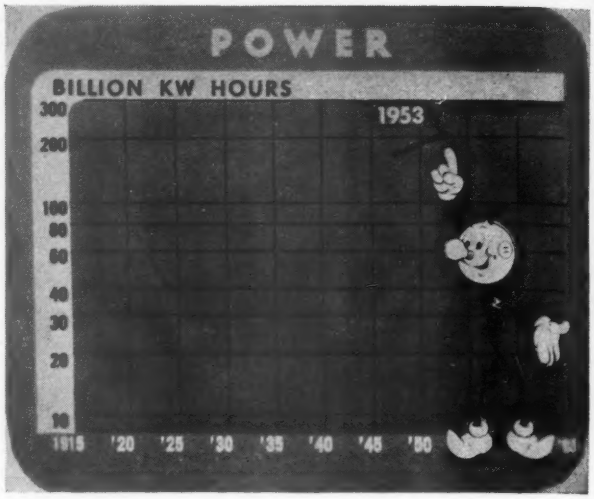

Fig. 10

time when it will be necessary to *tailor make* our iron ore. In fact, one pilot plant is already under construction. It is expected that the knowledge gained from operating this pilot plant will be used in converting the iron ore industry to the tailor making of ores within the next 10 to 15 years. Present plans indicate that about 5 million tons of iron ore will be processed in this manner by the year 1953, requiring approximately 60 to 80 kwhr for processing each ton of this ore. As we are now using iron ore at a rate of 85 to 100 million tons per year, an ultimate *plus* capacity of 550,000 kw, or an increase of 3,960,000,000 kwhr annually, is a definite plus in kwhr consumption for the iron and steel industry.

The Coal Industry

With labor costs at an all-time high and with coal cleaning receiving considerable attention because of the necessity of meeting the competition of other fuels as well as competition within the industry, increases in mechanical loading and mechanical cleaning will continue.

The following are a few pertinent facts pertaining to the coal industry:

Production of coal, both anthracite and bituminous, in 1947 was 665 million tons.

By far the greater part of bituminous coal is now being machine cut.

The mechanical loading of coal is in excess of 60 per cent of all the coal mined, or not less than 350 million tons.

Mechanical cleaning is performed on about 30 per cent, or approximately 199,500,000 tons of coal.

Total kwhr required is 10.3 per ton.

Total kwhr consumed by the coal mining industry in 1947 was 6 billion, more than *double* the kwhr consumed in this industry in 1936.

Also, it should be of interest to know that approximately the same number of kwhr was consumed in metal and nonmetal mining as was consumed in the coal mining industry.

For the mining industry we find that the total power consumption is divided as follows:

Motors	93.0%
Lighting	4.4
Heating and Welding	2.6
Total	100.0%

The mining industry as a whole, as shown in Fig. 7, which consumed in 1947, 13,950,000,000 kwhr, and consumed during the war era 11,200,000,000 kwhr annually, will consume not *less* than 16,800,000,000 kwhr in 1953. (See Fig. 8.)

Now that we have looked at the power consumption in the various classifications of industry, let us add up these demands and take a look at the overall picture.

It is our opinion that these industries which consumed the 163 billion kwhr in 1947, as shown in Fig. 9, and which reached a peak of 158,900,000,000 kwhr during the war, will consume not *less* than 201 billion kwhr in 1953 according to the graph in Fig. 10.

This presents a very interesting and attractive picture to you and is not overly optimistic, but rather on the conservative side. It is of further interest to note that meeting this demand on the part of all

(*Continued on page* 132)

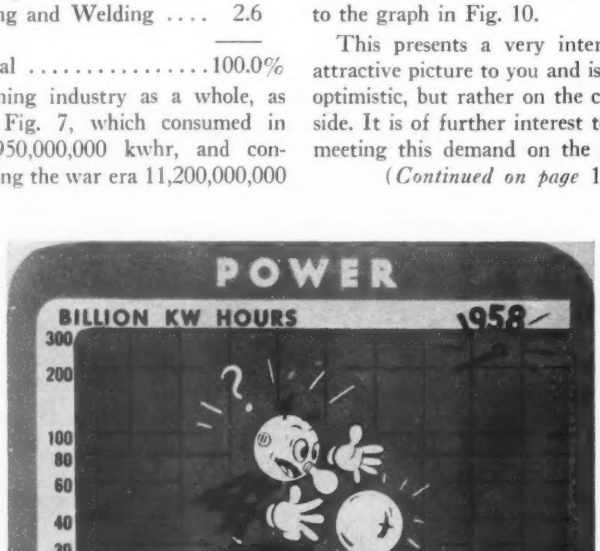

Fig. 11

Three Acres to Harvest

By H. S. Metcalfe

President, Public Utilities Advertising Association

An address presented before a luncheon of the Public Utilities Advertising Association meeting in Chicago, Ill., on April 7, 1948.

THE acute problems of the electric utility industry, which demand immediate attention, may tend to eclipse for the time being the need for continuing and specific development of its public relations activities. Just now it may seem that "the times are out of joint" to give primary concern to these matters when money, machinery, markets and manpower are top-drawer considerations.

Granting fully the importance of these current concerns of our business, it is always wise to take the long look and relate them to their proper place in the industry's growth pattern. This pattern, for business-managed companies, can only continue and develop by the grace of an understanding, enlightened and vocally supporting public.

Our industry, by this time, should be well aware of its status in the public mind. Surveys, local and national, supply the evidence. Out of the combined mind-power of our industry's leaders, educational programs have been born. Sincere and serious endeavors are being made to inform the unknowing, correct the ill-advised, and spell out the broad implications which affect all economic life when free enterprise is thwarted in one sector of our industrial structure.

The Story We Have to Tell

For a period of years now—through our national advertising and radio programs—the story of our dependable service, at low cost, and sometimes tinged with the unusual efforts of heroic men and women, has been impinging upon the eyes and ears of the American people. The effect on the public thus far has been all too modest when measured on the national yardstick. At the pace we have established it will be a long pull and a hard pull to accomplish the desired results in improved public relations. I am convinced, however, that the pattern of this program is sound, and that it must be continued on an impressive scale.

It is wise at this point to remind ourselves of a fundamental truism. *Relations are only established through people.* The human equation is the all-important consideration. Wonderful as the most modern power-producing equipment may be; smart and useful as the up-to-the-minute electric appliance is; clever and ingenious as our sales programs and techniques are; they are only indirect tangibles in our relationship problems. Human likes and dislikes; personal esteems and hatreds, individual loyalties and their opposites are the stuff out of which our public relations grow. Consequently, it is this broad area of personal contacts which must forever be in our realm of consciousness. The friends and foes we make determine our character standing in the communities we serve. If it is true, as my friend and associate Francis McQuillin avows, that "all business begins with the customer," it is equally true that all public relations, good, bad, or indifferent, stem from the same human source, from people.

New Acres to Harvest

The question to which we address ourselves today is asked against the background of our national advertising activity. It is this: Are there acres to be cultivated in the nearby fields which are frequently neglected? Acres in our own backyards, which, when ploughed, harrowed, fertilized, sown and cultivated, will yield good harvests? I believe there are.

There are many acres of our public relations contacts which are reasonably well cultivated. For instance, in our normal work activities we are in touch with all classes of customers. By personal visits of many types, by printed material, advertising, and the monthly service bill we have the privilege of visiting them all regularly. However, it is probably a conservative understatement to admit that, public relations wise, we have never capitalized to the full on these valuable opportunities.

Similarly, we have an open door to our employees, and if we are wise enough to avail ourselves of it, to their families, too. In training groups, and through the employee publication, the pay check, the annual report, and special bulletins we can maintain a close and healthy relationship.

Undoubtedly, every electric company knows the newspaper editors, the local municipal officials, the business and professional leaders in the communities it serves. In the regular conduct of business we meet them, and we belong to the same Rotary or Kiwanis Clubs and the local Chamber of Commerce. Because we try to be good citizens and partners in community enterprise and growth, there is a common purpose that links us together.

Security Holders

However, in my survey of available acreage to be harvested, I discover some neglected fields, important acres needing and awaiting intelligent attention. Today I mention three of these acres which, in my judgment, offer genuine opportunity for excellent public relations crops.

The first acre available for harvesting is that represented by the security holders of the companies in our industry. Why this vast number of potential friends receives so little attention is difficult to understand. It is doubtful whether there is definite knowledge by any company as to who the bond-holders are who have invested in its business. They are still people, however, whether individuals with small holdings or representatives of groups, such as insurance companies, hospitals, institutions, and endowments.

By necessity we have the names of stockholders for whom certificates are issued and to whom dividend checks are sent. I have been unable to secure any reasonably accurate estimate as to the number involved in this stockholder category, but they must run into the hundreds of thousands.

This group of security holders has evidenced their faith in our respective companies by entrusting us with their dollars. Thus, they have a definite economic tie which binds them to us, and logically

they should be concerned with what affects the companies who are stewards of their cash.

I am well aware of the fact that annual reports, quarterly statements, and to a lesser degree publicity material accompanying dividend checks, are received by stockholders. What information goes to the holders of our bonds is probably very meager. Many of the owners of our securities are also customers of the company to which they have entrusted funds, and if not that company, they receive electric service from other utility companies having the same type of public relations problems. Customer-ownership of securities is on the increase these days as the need for equity capital develops, and because of the desire of many operating company managements to develop more local support.

It seems to me that here is an opportunity for making friends who by the very nature of their financial relationship with us should be our allies. Management might well be challenged by the searching question as to whether full advantage is being taken of this opportunity.

More accurate knowledge at the local level, of who our security owners are and where they live; more and better information passed on to them; the cultivation of customer-stockholders on a personal basis, through visits to plants and occasional meetings; these and other devices will readily suggest themselves to alert management as means to a better public relations end.

We can ill afford to let this promising acre lie fallow. If the business of which we are a part and the economic system to which we give our loyalty are worth sustaining, then this vast army of investors who have made us stewards of their funds should be among our staunchest allies.

Educators and the Clergy

A second acre worthy of cultivation includes two of the neglected influence groups in our communities—the educators and the clergy. In my experience, they are among the forgotten people when the relationship of business to community and national welfare is under consideration. I am well aware of the bugaboo of fear which even the mention of influencing these groups creates, bringing back unpleasant reminders of the after-effects of so-called "propaganda" in years gone by. However, in my judgment, there is no warrant for fear when an apparent and expressed need for information is honestly and objectively met.

Every survey which has come to my notice, and especially that of the Public Opinion Index for Industry on "Industry and the Social Science Teacher," clearly points out the need and desire for facts about business on the part of those who are teaching our children and youth. They are well aware that the electric utility business is vital to every citizen in his home, his school, his shop, his mill, his mine, his farm, his factory, his community, his state, and the country of which he is a part.

Teachers of the physical and social sciences, consumer education, home economics, vocational agriculture, as well as the manual arts, have an educational, as well as a practical concern with the service we have to supply. They are tremendously interested in power plants, substations, distribution systems, as well as in the end applications of electricity.

Community Leaders

The spiritual leaders of our community life also have real concern in the industries as well as the institutions which benefit community growth and well being. Alert men in this field of religious leadership depend to an unusual degree upon the sympathetic support of all people and agencies which have the betterment of living as their objective.

The impression has gone abroad that many of these spiritual and educational leaders are suspect on account of their economic views. It's true that occasional blatant voices are raised supporting idealisms which in the mind of the speaker can only be made real through social change. There is little warrant, however, for wholesale condemnation of these two groups on that score, and if attitudes contrary to the positions we support are honestly expressed, perhaps the blame lies at our own door because of our appalling neglect.

Wise management will do everything possible to provide these two groups of people with full information about the business in which we are engaged. No opportunity should be overlooked to cultivate a sincere acquaintance with them, so as to discover their need for facts and then meet that need intelligently.

Erroneous ideas about any business, and specifically our own, in the minds of teachers or the clergy can be perpetuated ad infinitum as they are transmitted to students or congregations. We know that both groups are tremendously concerned with the social implications of every business and we also know that they guide and channel the growing opinions of tomorrow's leaders.

Truly, this neglected acre challenges immediate and intelligent attention if it is to produce a good harvest.

American Youth

Our youngsters, and particularly the troops in teens, constitute the third acre for harvesting. There is an increasing recognition of the importance of this group in many quarters. Why shouldn't there be? They are our customers of tomorrow. Many of them will be our employees after they are through school. They wield a tremendous influence on the pursestrings of their parents. Soon they will be casting their first votes and establishing their own homes. Within their circle are the next decade's business and civic leaders, and two decades from now they will dominate the whole American scene.

It is important to note at this juncture that the only political climate these youngsters know is that which began with the New Deal. They have been subjected to the barrage of publicity in all its manifold forms which has created this climate. To a greater degree than we perhaps realize, any tribute to the pioneering, rugged individualism and initiative of America, of which these youngsters may be conscious, has been played with a pianissimo stop on the vocal organs. The double forte pedal has been pressed way down when the virtues of social planning and new economic ventures have been enunciated.

The marvel to me is that in the light of all that has happened during the last 15 years, the will to do, to persevere, to achieve, and to pioneer, still prevails to so marked a degree among our enterprising youngsters. It must be that the spirit of the entrepreneur runs in the blood of our upstanding American youth.

Modern educational psychology lays great stress on the development of right social attitudes in life, and I firmly believe that we, along with other businesses, have a definite obligation to acquaint these future customers of ours with the contributions of our industry to social as well as individual well being.

An article in the January 15th number of *Modern Industry,* titled "There's Gold In Them Thar Kids," tells how sales-conscious manufacturers are discovering the huge, barely-tapped youth mar-

ket which is big today and steadily growing.

In our dealings with youngsters, we do not need to be concerned with profits. We need to make friends and making friends will pay big dividends in the long run.

Surveys showing what these youngsters think about business, prices, war, and politics, make fascinating patterns. There is a refreshing frankness in their attitudes; their minds are wide open for information. When so much of tomorrow's future is wrapped up in today's teen-agers, it well behooves alert business leaders to take stock and appreciate the opportunity now open to them to inform, counsel, and help.

From the standpoint of our political economy alone, when we recall that 2½ million young people become voters every year—10 million in a four-year presidential cycle—and that the opportunity of the first ballot to be cast challenges them to take that action in an unprecedented degree, we can well consider the effect of this group upon our national political scene. Remember that in the 1944 presidential election only 48,010,000 ballots were cast.

So, it seems to me there is dynamic opportunity open in this youth's acre, challenging our business and all business to do every legitimate thing possible in telling them our story and making them our friends.

What Tools to Use

Here, then, are our three acres to harvest—our security holders, our neglected influence groups of educators and clergy, and the vast potential of our youngsters and teen-agers. The question is what are we going to do about tilling the ground, planting the seed, and cultivating the crop.

This is neither the time nor the place to give detailed solutions. A wise general policy would seem to be to uncover the opportunities in our own backyards, to be of help locally wherever possible, and to use every available tool at our disposal in a constructive solution of this problem.

Actually there are many tried and proven tools at our command. Group meetings and demonstrations, "open house" visits to our power stations and buildings, localized radio programs, reminder advertising, booklets describing the nature and the human element of our business.

No matter what plans and programs are devised, or what specific tools are employed, the application of them will depend on the use of processes of communication. Many of these plans should develop personal contacts, but the vast majority will appeal by means of the printed or spoken word, utilized in manifold ways. I'm a firm believer in the ability of this industry to meet any situation which confronts it, to plan wisely and ably enough to solve any problem, national or local. The work necessary to cultivate these three acres can best be done, however, by the local company at the local level. Past experience indicates that no matter how good a national effort may be, it needs strong implementation by the local utility to be fully effective.

Would it not be wise to make consideration of the problem of these three acres a matter of top staff concern, calling in such expert advice and counsel as may be necessary in the situation? Among your available helpers is the one man in the company who should be most expert in this art of communications, by the use of which all these contacts can be made vital.

One of the major emphases in this administrative year of the Public Utilities Advertising Association has been that of calling the attention of advertising managers to open doors which they might enter to be of greater service to their companies. This three-acre seed sowing is one of the doors that is wide open. Your advertising manager should have both the "know-how" and the "know-what" to implement a program such as that which is called for as we view these neglected acres. I bespeak for him a chair at the council table when these problems are initially discussed, so that he may be a contributor to the making of your plans as they develop, and I do it in the firm belief that his contribution will be exceedingly valuable.

Annual Planned Lighting Awards To Be Offered By E.E.I. Better Light–Better Sight Bureau

THE FIRST Annual Planned Lighting Awards, for electric utility companies and their personnel who achieve outstanding success in promotion of Planned Lighting installations in the residential, commercial and industrial markets, have just been announced by the Edison Electric Institute and the Better Light-Better Sight Bureau.

The awards, offered jointly by the two organizations, will be made for successful Planned Lighting promotional programs sponsored by utilities during the twelve-month period ending March 1, 1949. A total of $1,400 in cash prizes, with certificates of merit and a plaque, will be presented.

First and second prizes of $200 and $100 respectively, will be awarded with certificates for the best individual programs in three lighting fields—residential, commercial and industrial. In addition to these six prizes, an engraved bronze plaque and $500 will go to the company with the best program in all three markets combined.

Judges will place special emphasis upon educational activities designed to teach Better Light-Better Sight principles; sales promotion and selling of Planned Lighting installations, including sales techniques, engineering and layout services, and sales training. Cooperative activities with local contractors, retailers and electrical leagues will also be considered, as will methods used for consumer promotion, such as advertising, model installations, exhibits and other sales practices.

Separate entries must be made for the residential, commercial and industrial Planned Lighting programs sponsored by any company. One company may win an award in one or more of the three markets, and may also win the award for all three markets combined.

Terms for the Annual Planned Lighting Awards will be distributed to the industry's commercial executives within the near future. Entries for the 1948 Awards should be received at Edison Electric Institute, 420 Lexington Ave., New York 17, N. Y., by April 15, 1949, and the awards will be presented at the 1949 E.E.I. Convention.

Commercial Sales: Unlimited

By P. M. Alden

Manager, Retail Sales Division, Philadelphia Electric Company

An address presented before the Fourteenth Annual Sales Conference, Edison Electric Institute Commercial Sales Section at Chicago, Ill., on April 6, 1948.

SALESMEN are now in the position to go out and sell additional load, without restrictions which may have existed during the past few years as a result of limitations in available generating and distribution capacities. The opportunities for the continued development of our commercial business are quite unlimited as far as the market is concerned, and are pretty much dependent upon our own efforts.

Commercial Business is Profitable

This is an optimistic view of the future of commercial sales. But it is an optimism based on the following factors:

1. There is little question but that we are now entering a period of increased competition in business, and to the extent that competition becomes more effective, customers will need our product to increase their sales and reduce their costs of operation.
2. The multiplicity of applications of electricity in the commercial field, although less than in the industrial market, is still very great.
3. In most companies cost allocations based on present rate schedules will show that commercial business is profitable business.
4. The long range outlook for increased commercial sales is good. Granted there may be a period of business recession ahead which will temporarily effect our sales volume. Such periods, however, should be but the signal for increased sales efforts.

It has been the history of our industry that over the years we have been helped by new developments and new discoveries. In this we can learn from the past.

When the Mazda lamp was first introduced, there was a feeling on the part of some that the utilities were in for a bad time because of the increased efficiency of this light source. Actually the exact opposite proved to be the case. This situation was repeated when fluorescent lighting became commonly accepted. All of us can recall that there was some feeling of anxiety as to the effect of this new light source. Today, it can safely be said that all of us recognize that the greater efficiencies of the fluorescent light source have been a help rather than a hindrance, in the development of our commercial lighting business.

Certainly we should welcome anything which will make it possible for our customers to use our product more efficiently and effectively. As long as our system of free competitive enterprise continues, and there is no reason why it should not continue for a long time if we are all willing to work and make sacrifices for it, new inventions and developments will continue to increase the demands for electricity in its many applications to the commercial market.

Development of a Commercial Sales Organization

In developing a sales organization to meet today's market conditions, it is important that we recognize the necessity of building on a foundation of responsibility to our customers, to our sales employees, and to our company. The principal points which we have considered in the development of our post-war commercial sales organization may serve as a sort of "check chart" with which you can compare your own operations.

Definition of Market

In talking about the commercial market we will also have in mind the small industrial customer. In other words, the market which we feel it is our responsibility to develop as commercial salesmen, *covers all secondary (115-230 v.) customers with the exception of domestic customers.* This definition may not exactly fit every situation, but at least it defines just where we stand.

In the Philadelphia Electric Company system, there are some 142,000 commercial and small industrial customers. Included in this number are doctors' and dentists' offices, storage buildings, hall lighting in apartment houses which are individually metered on the domestic rate, and numerous other applications which, in our opinion, do not justify any particular sales effort. Eliminating customers such as these brings our market down to about 75,000 customers which we feel are worthy of sales attention.

Selective Classification

We have classified these customers into 18 groups and have set up approximately two-thirds of them on an Elliott Addressograph system, which makes it possible for us to pick out customers in any one classification for special attention, either in sending out monthly sales periodicals or in specific sales campaigns.

Within each of these business groups we have selected those customers in particular neighborhoods that seem to have the best potential for future sales effort, designating these specific customers as groups "A," "B" and "C." This gives us flexibility in sending out any specific number of advertising pieces, and in arranging for personal follow-up in campaign activities.

In one activity we may want to contact only the "A" group in the Food Service Classification for example, whereas in another program we may want a list of "A," "B" and "C" groups from several classifications. In addition this system makes it possible for the salesman to build up a specific prospect list in the course of his regular work, in preparation for future campaign activities.

Our practice of selecting key customers in neighborhoods is based on our experience that one of the very best ways to sell additional uses of electricity is to develop one or more customers in a neighborhood who will work with us toward the complete electrification of their business, thus setting an example for others in the neighborhood to do likewise. There is nothing new in this idea. It is just "keeping up with the Joneses," but it works in the commercial market just as well as anywhere else, particularly in

such things as signs, improved lighting and air conditioning.

Uses to Be Promoted

As previously mentioned, there are a great many applications of electricity in the commercial market and we try to convince our customers that we have at least a speaking acquaintance with all of them and can answer their questions about them. In this connection the little booklet, "Applications of Electrical Equipment in Commercial and Small Industrial Establishments," produced by the Commercial Sales Section of E.E.I., has been particularly helpful with our newer sales people in giving them a picture of the many ways in which electricity can serve the commercial customer. However, as far as specific promotional work is concerned our activities are limited to the following:

Lighting of all types, including Electrical Advertising.

Electric Heating Applications.

Commercial Cooking.

Refrigeration, Air Conditioning, and Ventilation.

Type of Sales Operation

One of the first things which any commercial sales manager must decide is whether he is going to merchandise commercial equipment, or limit his sales effort to a cooperative selling program with dealers. In our experience merchandising equipment is inadvisable in the commercial market. This is principally due to the large number of potential applications, and also the fact, that in our territory at least, there is adequate dealer coverage with whom we can work cooperatively. We, therefore, limit our activities to the sale of ideas, turning the prospect over to a cooperating dealer through whom the sale is completed.

Market Coverage

There are many differences in the responsibilities which commercial salesmen are asked to assume in the various utilities throughout the country. In Philadelphia we have what is known as "All Service Salesmen." By this is meant that the salesman is responsible for more than just the promotion of additional use of commercial equipment. He also handles negotiations for extensions and reinforcements of service facilities and the connection of new customers, as well as the working out of customers' problems in connection with the use of our service.

In other words, we want the customer to feel our representative is the Company, in so far as he is concerned. For this reason we assign our salesmen to specific territories and they are the only company sales representatives in that territory. The number of customers assigned to a salesman will, of course, vary, depending upon the scope of his responsibility. In our company most of our territories include from 1200 to 1500 commercial customers of the type worthy of sales cultivation.

The salesman, however, is not left entirely to his own devices without adequate help or support. In the first place it has been our practice to have one Field Supervisor for each 7 or 8 salesmen. This means that the Supervisor can spend a day in the field with each salesman about once every two weeks.

In addition, our sales people can call on the help of a service organization which includes men specially trained in the various applications we are promoting, and other men who will take over the handling of such problems as power factor application, unusual high bill complaints, etc. We believe this kind of support is necessary if the salesman is to be free to do his best work.

One other point which is quite important is the careful definition of the salesman's responsibility. This we have tried to do by setting up definite job specifications for our commercial salesmen.

Selection and Training of Sales People

Having defined the market and the uses which we expect to promote in the market, the next logical step is the hiring of our sales organization. We in Philadelphia have not, up to this time, done very much with such items as the "patterned interview" and "sales aptitude tests." In spite of this we feel that we have been quite successful in developing a sales organization which works together as a team and gets results. Perhaps some of the things which we do consider in selecting new sales people may be of interest. A few of the items and qualities that we look for are:

1. Age—25 to 35 years
2. Married, rather than single
3. A pleasing personality
4. Ability to meet people easily—a liking for people
5. A good educational background, although not necessarily of college grade
6. Interest in selling as a career
7. Willingness to work
8. Willingness to learn

Some of our very best people have come to us from other departments of the company. They knew nothing about selling when we took them on and we have always considered it our responsibility to train our sales people. This training consists of two major parts:

1. Sales schools to give the basic elements of salesmanship, together with some of the fundamental knowledge regarding the equipment they are to promote, and
2. Field training with the supervisor, for which there is no substitute.

One other thing that we impress on our new men is the fact that we will judge them to a considerable extent by the confidence which they are able to build up in the minds of their customers, and the way in which the customers feel about them. In other words we point out to them that ours is a long term selling program and that we want them, in every contact, to so handle it that the customer will be glad to see them when they come back again. We also define for them a good sale as one which benefits both the seller and the buyer. Every time they make a good sale they lay the foundation for future sales success.

Salesmen's Tools

Having hired and trained our sales people, and turned them loose in the field, we still must support them with all necessary sales helps. One of the items which has proven helpful to our sales people is a Salesmen's Handbook in which we have tried to include all of the basic material the salesman will need in talking with customers about the principal commercial applications.

For this Handbook we have produced data sheets on various lighting, heating and cooking installations, and additional sheets will be developed as time goes on. In addition, the Handbook contains manufacturers' literature, in order that the salesman may picture to the customer the various applications which will meet his particular problems.

The only other material normally carried by our salesmen, in addition, of course, to a rate book, is a sight meter. This is basic equipment because we emphasize the fact that practically every customer on our lines is a prospect for better lighting of some kind, and this

can often serve as an entering wedge to the sale of other applications.

In the early days of our organization, before the war, we did a considerable amount of demonstrating on customers' premises. Since the war we have not felt that this was necessary, particularly as good installations have become more generally spotted throughout the territory. After all, one of the best demonstrations is the actual use of the equipment, or the better lighting installation, made by a neighboring business. We do still have a commercial cooking demonstration room in our main office building and find this is helpful, not alone for customers, but also for training our own and the dealers' sales organizations.

Salesmen's Compensation

It is our belief that commercial sales people should be paid on a straight salary basis, without commission or bonus. However, in order to develop additional incentives and to give the opportunity for extra earnings for outstanding accomplishment, we have had since the war a Prize Plan which we believe to be quite effective. The total amount of money available in this Prize Plan is not great, being only 4.0 per cent of the annual payroll, but its effectiveness is out of all proportion to the money involved. This prize money is paid out in two ways, first under a Quarterly Prize Plan in which sales accomplishment in specific items is recognized by additional payments, and secondly, as prizes in specific campaign activities.

The Quarterly Prize Plan is handled as a banking system. At the end of each month the salesman has credited to his bank account the amount which he has earned. He may draw out the money in the prize fund at any time, either in whole or in part, the only provision being that it must all be drawn out by the end of the calendar year in which it is earned. This flexibility seems to appeal to the men, and we find that a large part of their earnings are held until the end of the year when a little extra money becomes particularly welcome at Christmas time.

Sales Campaigns

This year for the first time since the war we have reinstated our normal program of sales campaigns. During 1948 we will conduct campaigns on electric heating, air conditioning, lighting and a restaurant campaign, which will feature commercial cooking and refrigeration. These activities are planned for the season of the year in which we believe they will be most effective, the heating campaign running from February 1 to March 1, the air conditioning campaign from March 15 to May 30, the restaurant activity from June 28 to August 15, and the lighting campaign from September 15 to November 15.

Prize Competition

In all of these campaigns, prizes are set up for outstanding accomplishment and the spirit of competition is developed as between the various supervisory groups. In our experience all sales people like contests. By making an activity of this kind a little different from the ordinary day-to-day work it is surprising the results which can be accomplished.

For example, our electric heating activity was called the "Retail Rodeo Round-Up." Each supervisory group represented a ranch and as the quota was attained a fence was built around that particular ranch. Progress reports were submitted weekly and the leading ranch each week had the honor of keeping the 10 gallon hat, while the trailing ranch had to entertain the spurs. These may seem like little things, but they work. In our air conditioning program we will have a fight to the finish between Reddy Kilowatt in the right hand corner, and Hot and Humid Harry in the left hand corner. In other words, by making a game of these campaigns we get results and we all have a little fun as well.

Advertising Helps

Any salesman worthy of his salt needs advertising support. This we try to give through two types of publicity.

Regular mailings to our commercial customers include "Commercial Tips" and "School Lighting News," both of which are produced by our own Advertising Department. "Food Service News" is purchased from Electrical Information Publications, and "Today's Business" from the B. J. Martin Company. In addition, we have used and expect to use more of the material produced by the Planned Lighting Program of E.E.I.

In addition to these regular mailings, most of which go out at monthly intervals, we use direct mail material in connection with specific campaign activities. This material is usually produced by our own Advertising Department and is paid for on a 50-50 basis by the Company and the manufacturers or their distributors who cooperate with us in specific campaign programs.

Reporting Results

One matter which has been a subject for discussion in every Commercial Sales Committee meeting in the last fifteen years is the best method of reporting the results of our salesmen's work. We have tried a number of ways and have finally settled on a simplified reporting system which we feel is quite satisfactory. Under our simplified plan our salesmen are asked to report daily only four items as follows:

1. Number of calls made.
2. Number of customers sold.
3. Number of cases sold—Two pieces of equipment represent two cases.
4. Kw installed under the principal classifications. For example, under lighting we have three classifications—commercial, small industrial, and advertising.

Based on our experience over a number of years we have assigned to these connected kilowatts average values of annual kwhr and revenue, and these figures are computed by a separate reporting group in the preparation of weekly and monthly reports. The use of a centralized reporting group relieves the salesmen of considerable paper work in the preparation of their daily reports.

So much for the check points which it seems to us should be considered, not alone in setting up a commercial sales organization, but in its active supervision from day to day.

Kwhr—"Hot Off the Griddle"

We who are responsible for commercial sales are fortunate. We have the best product in the world—kwhr, "hot off the griddle." We have a market which needs that product.

Whether we sell that market to the extent it can and should be sold is up to us. If we have the vision, if we are willing to work, and if we can sell our managements on the importance of developing an organization to do the job, we can look forward to Commercial Sales, Unlimited, secure in the knowledge that electricity, properly used, can help our customers build their business, to our mutual benefit.

An Engineer's Appraisal of The Current Outlook

By F. T. Letchfield

Consulting Engineer and Asst. Vice-President, Wells Fargo Bank & Union Trust Co.

Excerpts from an address before the Fourteenth Annual Sales Conference, E.E.I., Chicago, Ill., April 8, 1948.

WHAT are the potentials of our American economy, and what is the likelihood that the barriers preventing realization of those potentials can, and will, be removed? In respect to these two questions no man can rightfully speak dogmatically. There are, however, two basic assumptions upon which one may proceed to reason from cause to effect with every confidence. One is that economic forces, like those of gravity, are subject to definite laws. The other is that history inevitably repeats itself. On that basis I should like to discuss briefly the possibilities of American industry.

Industrial Warfare

One would think that the war had left the collectivists in this country not a leg to stand on, for it was private enterprise which had to rescue the nation when it faced disaster on December 7, 1941. It was American industry at its best which alone produced more goods than all other belligerents put together on both sides of the conflict. It did this with government hanging on its neck and labor unions often crippling one hand. It did this despite the discipline necessary in time of war and the confusions inevitable to such a gigantic task carried on under emergency conditions. It was the free enterprise system, energized by individual initiative, which, when our very existence as a nation was threatened, was called upon to arm eleven million Americans and as many more of our Allies. Starting from scratch it built a navy larger than the combined fleets of the rest of the world. It replaced twenty million tons of shipping sunk by enemy action, and added another twenty million tons to the Allied Merchant Marine.

With hardly a pause to catch its breath, this magnificent machine shifted to a peacetime task which, in its physical dimensions, was greater than that it faced during four years of war, huge as the latter was. Most remarkable of all, we do not yet know our true capacity to produce wealth; for American industry and business, since the end of the war, have been subject to continuous harassment from governmental interference with natural economic forces, from strikes and featherbedding by labor unions, from the uncertainties and tensions generated by the grim course of world affairs. Thus we do not know to what standard of living we might aspire if we can but realize the vast economic potential of America. We do know that since 1929 there has been a steady increase in our physical deficits, as represented by the labor and materials necessary to an adequate rehabilitation of our homes, our farms, our factories, our cities, towns and villages. Since the same date our population has increased by twenty million; new industries have come into being; and practically everything we own, or use, is quite obsolete in the light of scientific and engineering developments over the past ten years.

Industrial Potentials

In the longer view the potentials for every branch of commerce and industry are prodigious. By the time the automobile manufacturers have supplied the present urgent demand, they will face a greater task replacing a large percentage of cars in use today. The same general observation applies to the construction industry, and I need not mention to this audience the outlook for the electrical industry. In the realm of public transportation, whether by land, air or water, competition will bring about a considerable remodeling of existing facilities, providing greater safety, comfort and speed. The infinite number of combinations and permutations of the elements now possible to the chemist makes it impossible to gauge the ceiling of any branch of that industry, whether plastics or insecticides, soaps or fabrics, artificial fibres or new fuels and lubricants.

Developments in all fields of metallurgy, as a result of the war, will prove invaluable as time goes on. New alloys, better methods of heat-treating and welding, progress in the arts of powder metallurgy and induction hardening will all manifest themselves in higher quality and lower costs. High temperature materials being developed and improved for jet propulsion make certain that the gas turbine will be one of our most important prime movers within the next few years. As it stands today, a four and a half billion dollar industry — larger than the prewar automotive industry at its best —is built around electronics. And it has only started. Even the limited mileage of co-axial cables now in use has given a tremendous fillip to television. It will grow geometrically, as high frequency transmission facilities become available. All of these potentials of industry, (and the samples cited are but a fraction of the total) can be evaluated statistically. Together they point to a far greater national income than any figure we have heretofore regarded as normal.

National Asset—The American Mind

Our most valuable national asset, however, is dimensionless, for I refer to the human mind. There is a resource without limit—it can never be exhausted. To the contrary, the more we learn the more rapid the growth of our knowledge in all directions. This was strikingly demonstrated during the four years of war, particularly to those who were privileged to observe at first-hand the scientists and engineers of the country at work on radar, proximity fuses, guided missiles, communication equipment, military aircraft, combat vehicles and all the multitudinous mechanisms and devices required in modern warfare. There was like progress in new and better indus-

trial techniques and processes. There had to be for us to produce what we did.

The future economic significance of our war-born strides in science and engineering are incalculable, for it seems to be a cynical paradox of life that, as man devises greater inhumanities to man, he begets new and improved means of extending life and making it more comfortable. The most cogent aspect of all, however, is this: The war proved that no matter how complex the problem, how impossible a solution may seem, someway, somehow, the scientists and engineers of America can find the right answer. Nor need the incentive be a gigantic struggle for national survival. In common with their fellow Americans, the scientist and engineer prefer the rewards of peaceful pursuits to the frightful tragic arts of war. Let industry give them the opportunity and the means to employ their talents and they will perform still greater miracles.

How We Stand

So here we are—a people possessed of great material and human resources, creators and owners of a magnificent industrial machine with all the economic components to make it fabulously productive, a population of a hundred and forty-five million people eager and able to buy the output of that industrial machine, possessing cash reserves greater than our total national income of the boom year in 1929. The farmers are prosperous, and we can find use for everything our mines and forests can produce. The war did not destroy us as a nation as it did Germany and Japan. It did not shatter and weaken us as it did Italy and France. It did not ravage our lands as it did those of Russia. It did not despoil our cities and exhaust our people as it did in England. To the contrary the war left us incomparably strong. Truly, America would seem to be a land of boundless opportunities for all. But what picture is before us as we look over the United States today?

We behold a great nation, confused in its thinking, hobbling its incomparable strength because its people, although paying their devotions to free enterprise, still permit their government to dabble in planned economy. This spectacle compels the assumption that, despite the sorry results of all our foolish, futile experiments of the past fifteen years, a large number of Americans still believe that economic problems can be solved in Washington by acts of Congress and executive orders; they still believe that standards of living are elevated by raising wages without increasing the output of those who receive them, that economic stability and growth can be achieved by curtailing returns to management and owners while granting more and more pay to the employee for producing less and less. It is a crazy pattern which compels the question: How long will it last?

Deferred Economic Laws

No one can say with certainty, but we do know that economic laws inexorably assert themselves. They were blunted and deferred by the war and slowed by the confusions natural to cessation of hostilities—but they will not be denied. Inflated prices, distorted wage scales, and other manifestations of the bad politico-economics we have practiced, will all yield to the pressures they have generated; for in economics—as surely as in physics—what goes up must come down. There is growing evidence that the process is already under way, and corrective movements once started have a habit of accelerating. It is the cyclical character of history, however, which furnishes the best clues as to what we may expect.

Back in 1920 we undertook an ill-advised experiment in legislating social morals. It should have been obvious from the start that the experiment would fail, but it required 13 years for public opinion to crystallize to a point of action. When that point was reached, however, we liquidated the experiment in nine months, despite a most cumbersome legal procedure. This is not to suggest that it will be 1961 before we rid ourselves of all vestiges of planned economy. It may take much longer, for, unlike prohibition, the promises of "something for nothing," upon which planned economies are always sold, have an insidious appeal to the ignorant and the shiftless elements of society. Their votes are counted with the rest and too frequently this in turn causes high governmental policies to be formulated on a basis of political expedience.

We have witnessed this vicious cycle in operation much too long. But it is not impregnable. It is already being softened by the innate "horse-sense" of the American people and will be broken by the steady pressure of economic forces. The salient point is that in a democracy such as ours, where the individual is the ultimate political and economic unit, it takes time for individual reactions to coalesce in sufficient numbers to create politically critical mass effects or cause material changes in economic cycles.

America could never have become the nation it is today if its people had not been intelligent. In every instance, and there have been several, when our existence as a nation has been threatened we have always, in the end, found the right answer. There is certainly no reason to expect that the dangerous trend of the past several years, a movement to change our form of government, will not be stopped and reversed, for, as Lincoln said, "You cannot fool all of the people all of the time."

We must recognize, however, that the ominous turn in international affairs during the past several weeks poses a very real and grave danger to the perpetuity of our free enterprise system. If, in fear and panic, we impose a huge financial load for rearmament upon our present inflated price structure, there might conceivably result, either as a product of political manipulation or from popular demand, a re-imposition of government controls—they would likely be of an all-inclusive nature. It might take a generation or more to throw them off, and it would be tragic beyond measure if, in our efforts to preserve the freedom of other nations, we were to lose our own by adopting for ourselves the very kind of economic and social regimentation against which we were rearming. While it would be fatuous to ignore such a possibility I cannot believe that it can ever become a reality in America; for time after time we have demonstrated our ability to meet successfully the gravest crises without jeopardizing our freedoms. In short, I believe that history does repeat itself, that American will find the right answer. That belief is strengthened by a bit of reasoning which may seem rather strained.

Awareness—The Best Defense

Today every one in America is acutely conscious of the dangers present in both our domestic and international affairs. That fact may constitute one of our strongest protections against continuance of blighting government controls over our domestic economy or hasty ill-advised actions on the international front.

This is not to dismiss the problems before us. They are real. They are complex, difficult and stubborn, and before we can solve them there are many reversals we must make in our present attitudes and policies. We must stop look-

(*Continued on page* 129)

Improved Handling Methods—An Answer to Industry's Rising Production Costs

By F. W. McChesney
Industrial Divisions, General Electric Company

An address presented before the Fourteenth Annual E.E.I. Sales Conference at Chicago, Ill., on April 6, 1948.

ONE of the most fertile and promising ways of raising productivity and lowering costs in the manufacturing plant lies in the field of materials handling. Many of the elements that go to make up the cost of a finished article are difficult to control today. Labor costs are likely to continue at today's levels—or perhaps higher; the cost of raw materials and purchased parts can seldom be reduced without also reducing the quality of the finished product. But, the cost of handling materials within and between plants is one element of cost over which plant management does have some control.

Material Handling Costs

The cost of handling materials is usually a very sizable part of the total cost of production. As Fig. 1 illustrates, it is the usual experience that this cost of handling materials is seldom less than 20 per cent and often as much as 50 per cent of the total manufacturing cost. In certain industries, the handling cost rises as high as 80 per cent. One conservative authority states that, over all types of industry, the average handling cost is approximately 29 per cent of total manufacturing cost.

It is generally agreed that materials handling has not kept pace with the modernization of other manufacturing processes, yet proper modernization can pay worthwhile dividends and benefit industry in many ways.

But modernization, in the case of materials handling, means that we must do more than mechanize. It means not only that the right equipment but the *right method* must be chosen to efficiently perform any particular handling job.

There is no simple, rule-of-thumb formula for deciding upon the best method of handling materials. A method that is found to increase production and decrease costs in one plant may not always be efficiently applied in a second plant. The physical building and the material to be handled are only two of the many factors upon which the choice of method depends. However, there is nearly always a better way—a better method of handling materials. There are literally hundreds of instances where improved handling methods have increased production and decreased costs.

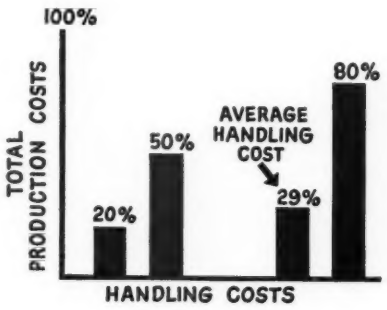

Fig. 1

For example, until recently we received all the lumber which we use in our Schenectady Works carpenter shop in boxcar shipments. These cars were unloaded one board at a time by a gang of men, each board being individually carried to its proper stack. It required a gang of 21 men, working full time, to unload and stack the lumber from the 15 cars we received each week. As a result, our yard, seen in Fig. 2, was overcrowded, the new lumber on top of the stacks was used before the more seasoned lumber, and we frequently had cars in demurrage.

We decided to convert our yard from handling individual boards to handling packaged units of lumber. It was first necessary to fill in and level off the yard so that a fork truck with pneumatic tires could operate. Some of the machinery in the carpenter shop had to be relocated so that trailer loads of lumber could be hauled direct to the saws.

Fig. 2—Lumber Storage Area Before Being Modernized at GE Schenectady Works.

Fig. 3 — Lumber Stacked for Improved Method of Handling by Package Unit Loads at GE Schenectady Works.

By using two men to a boxcar we unloaded onto skids and made up a package of lumber approximately 4 ft. by 4 ft. by 12 ft. These units were separated from each other by 2 by 4's, which allowed space for the forks of the truck. We found that it was best to unload from both sides of the car, so that if the fork truck were busy, the unloaders were not held up waiting for the removal of the lumber.

The complete unit was then lifted by the fork truck, strapped, and then transported to the storage area. The fork truck used has a capacity of 15,000 lb. and will elevate the package to a height of 17 ft., 6 in. to the bottom of the unit. As a result we now have higher stacks, shown in Fig. 3 and plenty of storage capacity in a limited ground area. We find that we can actually store 30 per cent more lumber in the same space, and it is an easy task to stack the old packages on the new. In this way, the old lumber is used first; an entire package can be placed on a trailer at one time. The present yard is always picked up and neat, although there are fewer men on the job.

We were able to release 9 men to more productive and better-paid work by this conversion, and we realized a savings of $1.35 per 1000 board ft. We receive, on the average, better than 1,000,000 board ft. a month, and are thereby effecting a savings of $1350 a month.

Flatcar Unit Shipments

We have recently experimented with flat car shipments of lumber which are packaged and strapped at the mills as shown in Fig. 4.

The increasing trend in the package type of shipment is, of course, not confined to any one type of material.

Let's look at a factory which uses a very substantial amount of sheet metal annually. Formerly, this metal was received in boxcars and was unloaded, stored in the warehouse, and removed for processing by hand. Injuries to the workers were unavoidable, the material was often damaged in handling, and the physical flow of the material was slow and costly.

After investigating the matter, the company arranged to have their suppliers ship the sheet metal in gondola cars in strapped unit loads. The cars were unloaded by a mobile crane and the material was put in storage outside the shop. The company realized a direct labor saving of $20.65 in unloading each car. Similar economies were obtained in moving the material from storage to production by tractors and trailers. In the factory, the trailers were unloaded by a crane using a clamp similar to the one used by the outside mobile crane. An entire package was moved in this way from the trailer to the machine, and the necessity for handling individual sheets was again eliminated.

A metal working company, which recently expanded its production capacity, faced a serious problem in the shortage of working space. A survey of the plant showed that a considerable area in the plant was being utilized in storing round billets of aluminum alloy awaiting manufacturing processes. By tiering the billets in outside storage, it was found that material flow in process could be perfectly scheduled and more efficient use made of the vacated space. The electric truck which brought the material in from outside storage was also used in handling material between manufacturing operations.

Tiering

A graphic example of the "tiering" solution to storage problems is revealed in the Army's and Navy's experience in World War II, when the biggest materials handling job in history occurred. Official records show that the investment

Fig. 4—Flatcar Loaded With Packaged Lumber by Approved Method, Packages Bound by Steel Strap.

of $50,000,000 in modern equipment, to do the work of 25,000 men who were not available, saved that amount in labor costs in one year alone. The same report states: "Through better utilization of storage space, it was possible to store 30 per cent more supplies in existing space. If space utilization had not been increased to this extent, it would have been necessary to construct 40,000,000 sq. ft. of additional warehouse space at a cost of five dollars a square foot. This represents a savings of $200,000,000."

The interesting case of a cabinet-making plant indicates that, oftentimes, a simple rearrangement of machinery will result in increased production and lower production costs. Moreover, great benefits in supervision and production control are frequently thus made possible. By rearranging the machines in the plant, full advantage was taken of roller conveyor equipment which was already installed. By placing the machines in the successive stages of work performance, and using the conveyor to carry the work from machine to machine, the distance the work had to travel was reduced from 4600 ft. to less than 300 ft. Non-productive time in manufacturing was cut by 56 per cent and the production cost savings were substantial. The quality of the product is improved, and breakage and damage has been reduced by 10 per cent.

A foundry located in the East recently found that its productive capacity was restricted because of lack of floor space. The available area was badly congested since large flasks containing heavy castings took several hours to cool, and prevented the space they occupied from being used for other pourings. It was first thought that an addition to the building would be necessary in order to increase production.

Using Outdoor Areas

Again, a better method was found. By placing the flasks on rail-mounted trailers and rolling them out-of-doors to cool, congestion in the pouring area was eliminated. When cool, the flasks were brought back into the foundry for final emptying. A roller conveyor was installed to carry the cores from the ovens to the ladles. The rail-mounted trailers and the roller conveyor cleared up the congestion problem, and as a result of these two installations, two extra pourings per day on the same floor space in the same building are now realized, with a proportionate decrease in production costs.

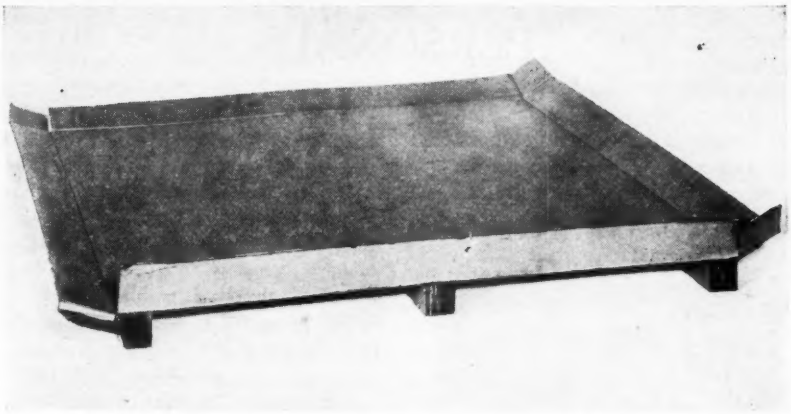

Fig. 5—Corrugated-Board Pallet With Inverted Cover for Top.

Expendable paper pallets are paying their own way in General Electric in the form of lower freight charges. The lower shipping charge resulting from the lighter gross weight and the elimination of the cost of returning empty pallets have more than compensated for the loss of the low-cost expendable paper pallet. Fig. 5 shows our standard size corrugated fiber board pallet which is 48 in. by 44 in. The weight of this pallet is about 8 lb. Wooden pallets of the same size weigh in the neighborhood of 90 lb. and cost approximately three times as much. The paper pallets are built to our specifications by fabricators of standard corrugated board items and can carry a static distributed load of 10 tons. Although intended only for one one-way trip, many of the pallets have shown exceptional durability in continued use under ordinary conditions.

There are definite limitations, however, to the use of fiber board pallets. They are not waterproof and should not be exposed to weather conditions known to be unfavorable to ordinary corrugated cartons. Loads with sharp corners, or with the weight concentrated at one or two points are not adaptable to paper pallets unless first crated or skidded. But, within their limitations, paper pallets require no more consideration than conventional pallets, and offer an opportunity to cut production costs.

More and more, industry is turning to modern handling methods and equipment to perform the endless physical tasks of lifting and carrying—and where that has been done, the usual result is increased production and lower overall costs.

An Engineer's Appraisal of the Current Outlook

(*Continued from page* 126)

ing to government to solve our problems. Instead of bewailing the fact that Washington is not finding a solution to our economic difficulties, we must insist it cease trying to do so. We must deport class hatreds and feudalistic caste psychologies to the foreign shores from whence they came. We must restore the right of any man to work for whomever he please in any field he may choose. We must individually accept responsibility for our own acts if we are to reap the rewards of our own efforts. We must come again to regard "Rugged Individualism" as a proud title. In short, we must live the precepts upon which our forefathers founded this nation.

As of today, the panoramic view of national affairs brings out in bold relief the extraordinary adaptability, resourcefulness and vitality of American business and industry. To perceive these qualities we have to look no farther than the war and what we accomplished then, or, nearer yet, to the progress we have made, despite the handicaps and difficulties faced, since the guns ceased firing. The same pattern of strength and virility is visible to the farthest horizons of our history. Is there any sound reason, then, for doubting that we will meet the problems before us with equal intelligence and fortitude? This is not wishful thinking. It is a simple expression of an abiding faith in America.

PERSONALS

ROBERT H. KNOWLTON has been elected president of the Connecticut Light & Power Company, succeeding CHARLES L. CAMPBELL, who becomes chairman of the board. Mr. Knowlton is an engineering graduate of Cornell University. He first became associated with the company in a consulting capacity in 1917. In 1926 he was made assistant to the president and a year later vice-president in charge of sales and public relations. He was elected a director in 1935, and in 1939 became executive vice-president. At one time Mr. Knowlton was a member of the Connecticut Board of Mediation and Arbitration. He is a member of the boards of the Edison Electric Institute and of the New England Council.

MR. CAMPBELL

Mr. Campbell has been president of the company since 1937. He joined C. L. & P. about 36 years ago. His financial leadership and participation in larger phases of utility activities and interests have commanded wide respect. The company's development from the angles of customer, employee and stockholder interest has been outstanding during his administration. Mr. Campbell has been a consistent advocate of state regulation as opposed to federal in connection with companies doing intrastate business.

EARL H. EACKER has been elected president of the Boston Consolidated Gas Company. A graduate of the Massachusetts Institute of Technology, he entered the utility field in 1923 as electrical superintendent of the Charlestown Gas & Electric Company. He joined the Consolidated company in 1931; was identified with electrical problems and was rapidly promoted to increasing executive duties in the following years.

Appointment of vice presidents L. HAROLD ANDERSON and NORMAN R. SUTHERLAND to newly created positions as assistant general managers of Pacific Gas and Electric Company was announced by James B. Black, president. They will be executive assistants to William G. B. Euler, vice-president and general manager.

Mr. Black also announced that O. R. DOERR, P. G. and E. sales manager for the past ten years, was appointed vice-president in charge of sales to fill a post vacated by Mr. Sutherland.

Mr. Anderson, a former president of the California Public Utilities Commission, has been a vice-president of P. G. and E. since August, 1946.

Mr. Sutherland, formerly manager of the company's San Francisco Division, was vice-president in charge of sales and public relations prior to the new appointment.

Mr. Doerr became identified with the utility in 1921 when he resigned his commission in the U. S. Navy and joined the sales department of the Great Western Power Company in Oakland, a corporation which merged with P. G. and E. in 1930. He graduated from the U. S. Naval Academy at Annapolis in 1918.

The new vice-president is widely known in Bay Area sales management circles and currently is president of the San Francisco Sales Managers Association. He is past president of the Pacific Coast Gas Association, past president of the San Francisco Electric Club and a member of the National Federation of Sales Executives, the Pacific Coast Electrical Association, the San Francisco Engineers Club and the San Francisco Chamber of Commerce.

THOMAS J. STIVERSON, who has been connected with the Columbus and Southern Ohio Electric Company, Columbus, for more than 30 years, and treasurer since 1935, has been elected vice-president and treasurer.

EDWARD A. BAILY has retired from his position as a vice-president of the Consolidated Edison Company of New York, Inc. He has been in charge of administrative duties related to company activities in Brooklyn. These will be taken over by HAROLD C. DEAN, who will retain his present position as vice-president in charge of administrative duties in Queens. Mr. Baily joined the old Edison Electric Illuminating Company of Brooklyn, Inc., in 1905. When this company was merged in 1919 with the Brooklyn Edison Company, Inc., he continued with the latter organization, and subsequently was elected vice-president and later executive vice-president. In 1945 when the Brooklyn utility was merged with Consolidated Edison, Mr. Baily became a vice-president of the parent company with administrative duties in Brooklyn. Since 1943 he has been chairman of the finance committee of the Consolidated Edison System Companies.

HENRY B. SARGENT, president of the Central Arizona Light and Power Company, has been elected to the board of the American Institute of Foreign Trade.

H. C. BLACKWELL, who has been serving as chairman of the board of directors of Cincinnati Gas and Electric Company, since his retirement under the Retirement Income Plan as president of the company in 1945, has resigned as chairman of the board and as director of the company.

Mr. Blackwell joined the Cincinnati utility in 1924 as vice-president and general manager, going there from Kansas City, Mo. He entered the public utility field as engineer with the People's Light Company of Davenport, Iowa, in 1906 and advanced to vice-president and general manager. In 1917 he was made vice-president and general manager of the Kansas City Power and Light Company. Active in associations representing the public utility industry, Mr. Blackwell has served as president of the Association of Edison Illuminating Companies.

WRIGHT CANFIELD, head of the research department of the Public Service Co. of Oklahoma, Tulsa, has been appointed assistant to the president. He will be in charge of rates and in general will be an economist for the utility. Mr. Can-

field has spent practically his entire business career with Public Service. Starting in 1930 he was assigned to the general office engineering department and later to the Weleetka power station. Returning to Tulsa in the general engineering department, he engaged in certain economic studies for the company. After several operating assignments he was made head of the research department. Mr. Canfield holds membership in the American Institute of Electrical Engineers.

BARRETT M. CAROTHERS, project engineer, engineering and construction department, Union Electric Company, St. Louis, has been appointed electrical engineer.

Appointment of DAVID A. AITKEN as director of development activities of the Cleveland Electric Illuminating Company has been announced. Mr. Aitken succeeds ROBERT C. HIENTON who was recently promoted to the position of industrial sales manager.

As a member of the development division, Mr. Aitken has played an important role in the campaign to encourage business and industry to locate or expand in the Cleveland-Northeast Ohio area. During the war, he spent three years in the Pacific theater with various combat commands.

He is a member of the Cleveland Chamber of Commerce.

PAUL W. MCCORMICK, formerly supervising industrial engineer, has been appointed to the position of industrial sales manager of the Union Electric Company, St. Louis, succeeding F. V. ARMISTEAD, who has resigned to establish his own consulting engineering practice.

ROY T. DUNCAN has been appointed commercial manager of the Detroit Edison Company. Mr. Duncan has been identified with the Detroit utility since 1902. EARLE L. KAVANAUGH, veteran power engineer, has been appointed new business manager in the sales department. He joined the company in 1913. EDWIN O. GEORGE has been named assistant commercial manager, sales department. Advertising and appliance merchandising have been placed under his direct responsibility. He started with the company in 1929.

JOHN W. ANDERSON has been appointed division superintendent, Philadelphia division, transmission and distribution, Philadelphia Electric Company, succeeding WILLIAM FOSTER, retired. Mr. Anderson was connected with engineering firms in West Virginia and New York before joining the Philadelphia Electric organization as an assistant electrical designer. He has had wide experience in electrical designing and construction work, having served during his connection with the company as design calculator, senior electrical designer, engineer, engineer of system planning, superintendent of engineering division, transmission and distribution department, and assistant division superintendent, Philadelphia division T. & D.

G. S. DUNN, commercial manager for the Kentucky-West Virginia Power Company in Ashland, Ky., since 1926, has been appointed director of personnel and public relations for the Appalachian Electric Power Company, Roanoke, Virginia.

GORDON R. HAHN, superintendent of construction at the Hellgate station of the Consolidated Edison Company, New York, has been appointed an adjunct professor of mechanical engineering, Stevens Institute of Technology, Hoboken, N. J. Mr. Hahn is one of eight engineers appointed adjunct professors from industry as recognized authorities in their fields under a new policy adopted by Stevens Board of Trustees.

JAMES V. GALLAGHER, formerly connected with the Jersey Central Power and Light Company, Asbury Park, has been appointed power engineer with the Tide Water Power Company, Wilmington, N. C. Mr. Gallagher had been identified with Jersey Central Power and Light for 18 years as division power engineer and manager of industrial power.

JACK L. MCDONALD, who has been a new business representative for Arizona Edison Company, Inc., Phoenix, has been promoted to new business and advertising manager. Mr. McDonald has served with the Arizona Edison for 10 years with the exception of three years spent in military service during World War II.

B. S. Moss has been appointed agricultural agent for the Georgia Power Company, Atlanta. He was formerly rural engineer for the Columbus division. Directing his activities to the advancement of agriculture in the territory served by the company, Mr. Moss will work in coordination with established agricultural agencies over the state and with the company's rural and community development divisions.

RAY R. ROBERSON has been appointed assistant superintendent in the light and power department of the Puget Sound Power and Light Company at Burlington, Wash., to succeed ROY SAMSON, retired. Previously distribution engineer at Bellingham, Wash., for ten years, he is an electrical engineer with a degree from the University of Washington. Mr. Samson has been with the company since 1900. He had been at Burlington as assistant superintendent since 1930.

WALTER G. WETZEL has been appointed director of power and steam utilization, industrial sales department, Duquesne Light Company and Allegheny County Steam Heating Company, succeeding the late H. W. Dexter, Jr. Mr. Wetzel became associated with Duquesne Light in 1922 and since 1929 has been serving as supervisor of power utilization. CHARLES M. BOARDMAN has been appointed to the latter position to succeed Mr. Wetzel. He has been identified with Duquesne Light since 1925.

C. B. LAY has been appointed to the newly created position of rural electrification coordinator of the Mississippi Power and Light Company, Jackson, with responsibility to work with all company divisions in the coordination of all activities affecting REA cooperatives. In his new position Mr. Lay will also work closely with REA officials for better coordination of rural electrification in Mississippi. Mr. Lay had previously served for several years as residential and rural supervisor for the central division. Other changes announced were the transfer of EARLE B. GUESS, for the past several years central division sales manager, to a similar position in the southern division, with headquarters in McComb. Succeeding Mr. Guess as central division sales manager is H. STUART THOMAS, who until now has been serving in a similar capacity for the northwestern division. CHARLES M. BROAD, industrial sales engineer, has been appointed division sales manager for the northwestern division.

P. J. JOHNSON, formerly superintendent of the Appalachian Electric Power Company's hydro plants in the Kanawha Valley, has been appointed supervisor of hydro plants for the company, with head-

quarters in Roanoke. Mr. Johnson succeeds J. B. JUSTIN, of Pulaski, who has resigned to become associated with his father as a consulting engineer in Philadelphia.

More than 1600 members of the Philadelphia Electric Company's "Quarter-Century Club," composed of employees with twenty-five or more years of service with the utility, were feted April 8, at a dinner held at the Broadwood Hotel. The occasion marked the 22nd annual dinner of the group, the biggest annual event on the Company's calendar. The evening was highlighted by the formal induction of 273 new members into the Club, one of the oldest and largest organizations of its kind.

Clifford Winner, president of the club and treasurer of the utility, presided at the meeting. The other officers of the "Quarter-Century Club" are: Joseph M. Barnes, senior vice-president; John Vorndran, second vice-president; Clara H. Zillessen, third vice-president; B. Edward Uphoff, fourth vice-president; and Victor H. Jones, secretary-treasurer.

Prospects for Future Industrial Power Load

(*Continued from page* 118)

the various channels in which industry naturally falls will require the installation of some additional 27 million kw in generating capacity. In other words the electric power industry, will of necessity, in order to keep pace with the increased demands of industry, continue to install generating capacity during the next five years at the same, or even *greater,* rate that is now planned for installation over the next two to three years.

But, after all, it is not too difficult a problem to look ahead for the next five-year period. Admittedly we will have some momentary recession in the overall business activity probably during 1949. But it is generally recognized that you do not get far away from the trend curve of power consumption, and this trend curve shows that we *double* the consumption of kwhr in industry *every 14 years.*

Regardless of whether times are temporarily good, bad or indifferent, the trend line marches on. So let's throw all caution to the winds and see what is in store for us ten years hence, or, in other words, let us take a peek at 1958 to see what that year holds for the utility industry.

Although recognizing the danger of forecasting so far in advance, as well as the possibility of losing such reputation as may have been earned in the past, *our* forecast of kwhr consumption in industry in 1958 reaches well above 250 billion kwhr as shown in Fig. 11.

I know of no better way to close this talk than to repeat the *closing* words of my talk at the Future Power Market Forum, I quote:

"Some of you may think that this picture has been painted with too rosy a hue. I do not believe it. I am confident in the future of industry in America.

"So, in my opinion, the central station has a lot to look forward to in the postwar era, also, I am sure that the utility will continue to capitalize to the fullest extent on the conditions as they are by the continued use of the shrewd business management which has ever been foremost in their operations."

CONVENTIONS AND MEETINGS

1948

MAY

3-4	Electrical Equipment Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
3-4	Transmission and Distribution Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
3-7	National Electrical Wholesalers Association, Statler Hotel, Buffalo, N. Y.
4-5	Accident Prevention Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
4-5	Hydraulic Power Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
5-7	Missouri Valley Electric Association, Rural Round Table Discussion and Sales and Rural Conference, President Hotel, Kansas City, Mo.
7-9	Westinghouse Agent-Distributors Association, Hotel Statler, Buffalo, N. Y.
10-11	Prime Movers Committee, EEI, Muehlbach Hotel, Kansas City, Mo.
10-12	Northwest Electric Light & Power Association, Business Development Section, Empress Hotel, Victoria, B. C.
10-13	National Fire Protection Association, Statler Hotel, Washington, D. C.
13-14	Pennsylvania Electric Association, Systems Operation Committee, Castleton Hotel, New Castle, Pa.
17-18	Northwest Electric Light and Power Association, Accounting and Business Practice Section, Devenport Hotel, Spokane, Wash.
18-21	National District Heating Association, Hotel Statler, St. Louis, Mo.
20-21	Pennsylvania Electric Association, Transmission and Distribution Committee, Irem Temple Country Club, Dallas, Pa.
24-25	Meter and Service Committee, EEI, Lafayette, Indiana.
27-28	Missouri Valley Electric Association, Accounting Conference, (Place to be determined).
27-28	Public Utilities Advertising Association, Hotel Cleveland, Cleveland, Ohio.

JUNE

1-3	EDISON ELECTRIC INSTITUTE, Annual Convention, Atlantic City, N. J.
9-11	Northwest Electric Light and Power Association, Personnel Section and Accident Prevention Conference, Medford, Ore.
10-11	Pennsylvania Electric Association, Prime Movers Committee, Hotel Casey, Scranton, Pa.
14-15	Arkansas Utilities Association, Arlington Hotel, Hot Springs, Ark.
16-18	Pacific Coast Electrical Association, Inc., Hotel Fairmont, San Francisco, Cal.
16-19	Canadian Electrical Association, Annual Convention, Manoir Richelieu, Murray Bay, Quebec, Can.
21-25	American Institute of Electrical Engineers, Summer General Meeting, Mexico City, Mexico

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J. A. LONGLEY.....Central Illinois Light Co., Peoria, Ill.
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C. E. OAKES.....Pennsylvania Power & Light Co., Allentown, Pa.
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EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

(Continued)

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New England Electric System, Boston, Mass.

GROVER C. NEFF
Wisconsin Power & Light Co., Madison, Wisc.

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Consolidated Edison Co. of N. Y., Inc., New York, N. Y.

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